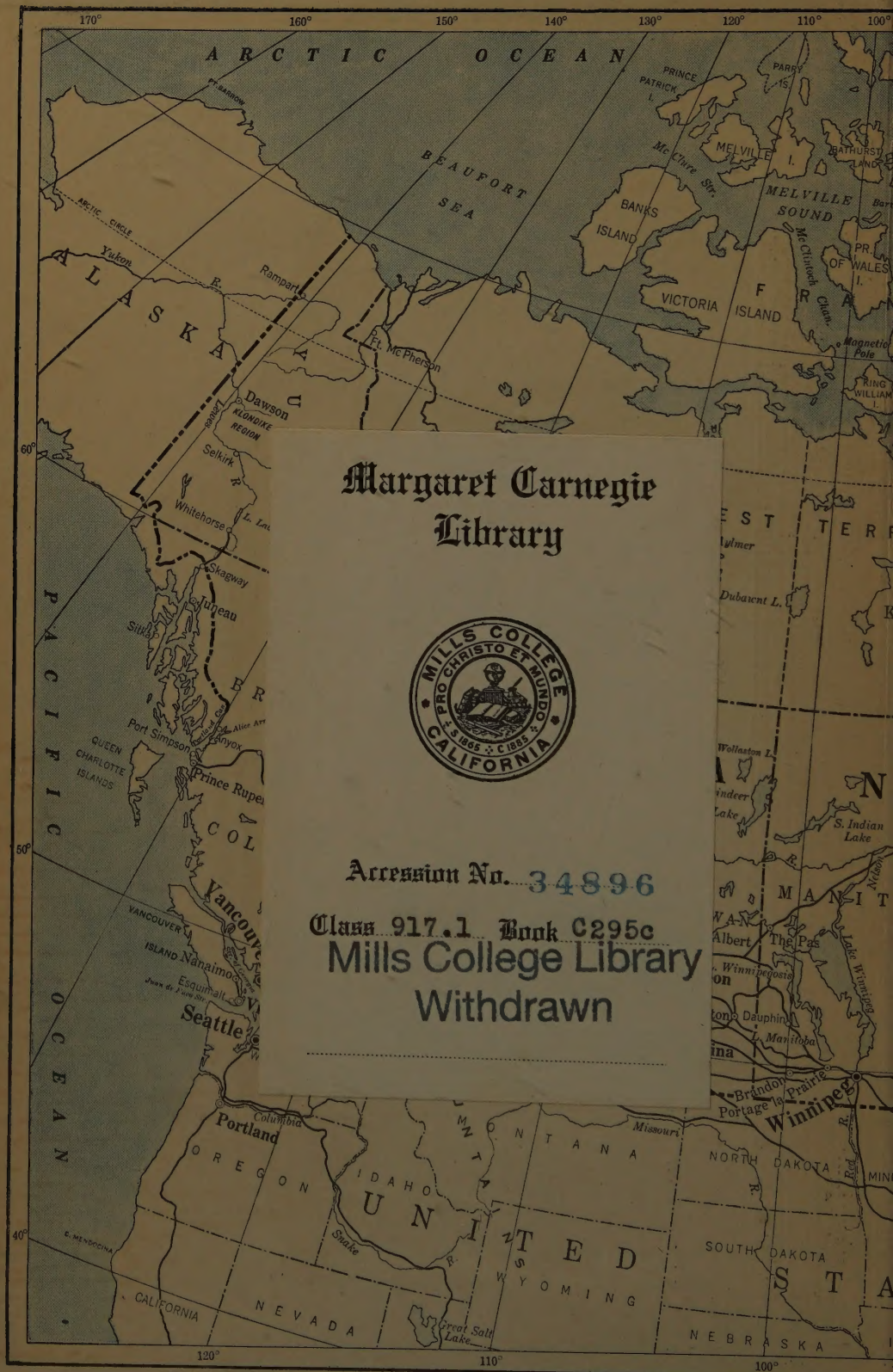
CANADA

FRANK G CARPENTER



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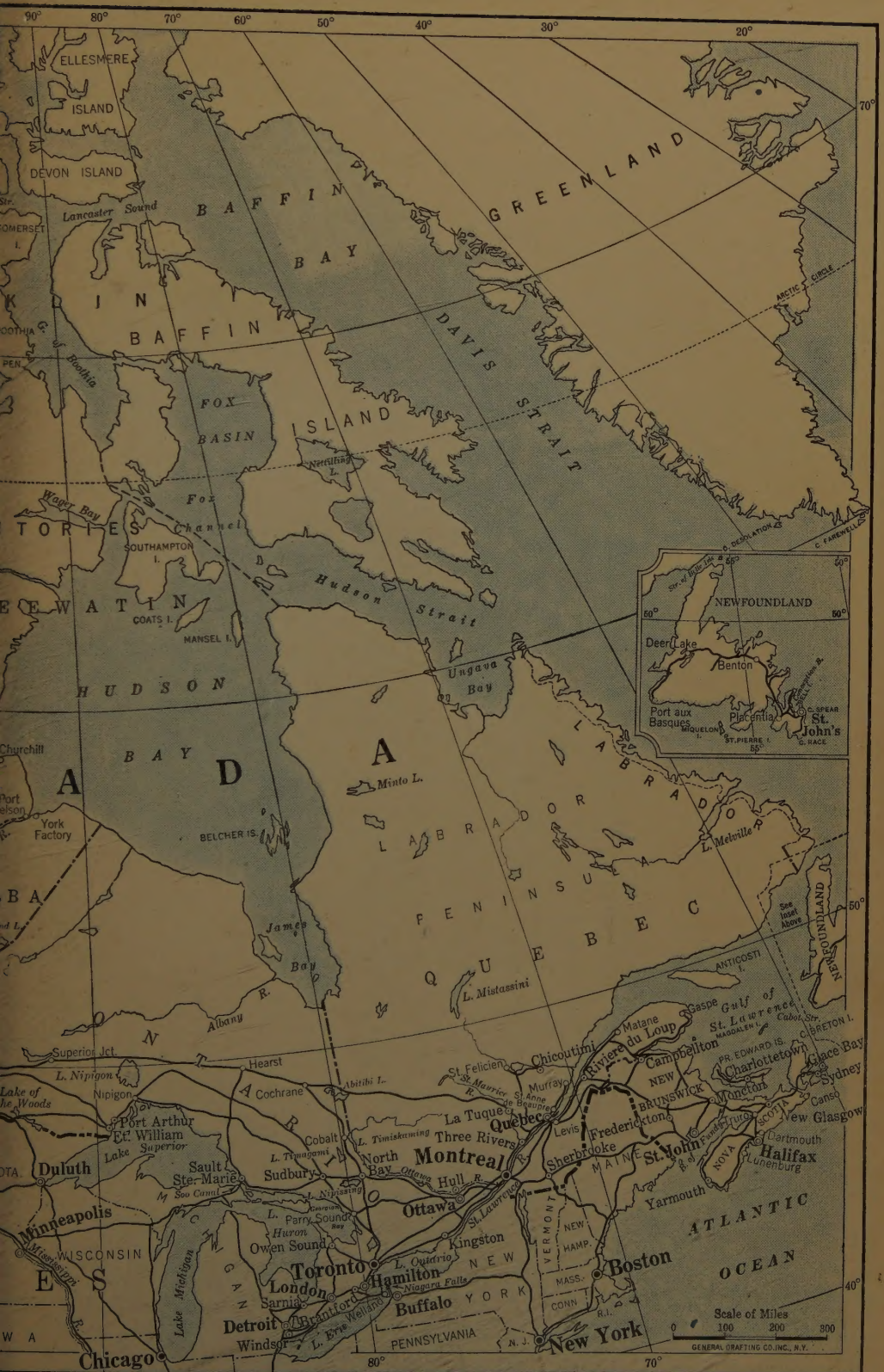
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Lancaster Sound
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GREENLAND
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BAFFIN ISLAND
FOX BASIN
Fox Channel
SOUTHAMPTON I.
COATS I.
MANSEL I.
Hudson Strait
Ungava Bay
HUDSON BAY
Minto L.
BELCHER IS.
York Factory
Churchill
James Bay
Albany R.
LABRADOR PENINSULA
L. Mistassini
L. Melville
NEWFOUNDLAND
Deer Lake
Benton
Port aux Basques
Placentia
St. John's
C. SPEAR
C. RACE
C. DESOLATION
C. FAREWELL
ARCTIC CIRCLE
ANTICOSTI
Gaspe
Gulf of St. Lawrence
CAPE BRETON I.
PR. EDWARD IS.
Charlottetown
Grace Bay
Sydney
Canso
New Glasgow
Halifax
Dartmouth
Lunenburg
Yarmouth
Campbellton
Riviere du Loup
Matane
Chicoutimi
Murray B.
St. Felicien
St. Maurice R.
St. Anne de Beaupre
Levis
Quebec
La Tuque
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Montreal
Sherbrooke
Frederickton
St. John
NEW BRUNSWICK
Moncton
NOVA SCOTIA
MAINE
Superior Jct.
Hearst
Cochrane
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L. Nipigon
Nipigon
Lake of the Woods
Port Arthur
Ft. William
Lake Superior
Duluth
Cobalt
L. Timiskaming
L. Timagami
Sudbury
North Bay
Ottawa
Hull R.
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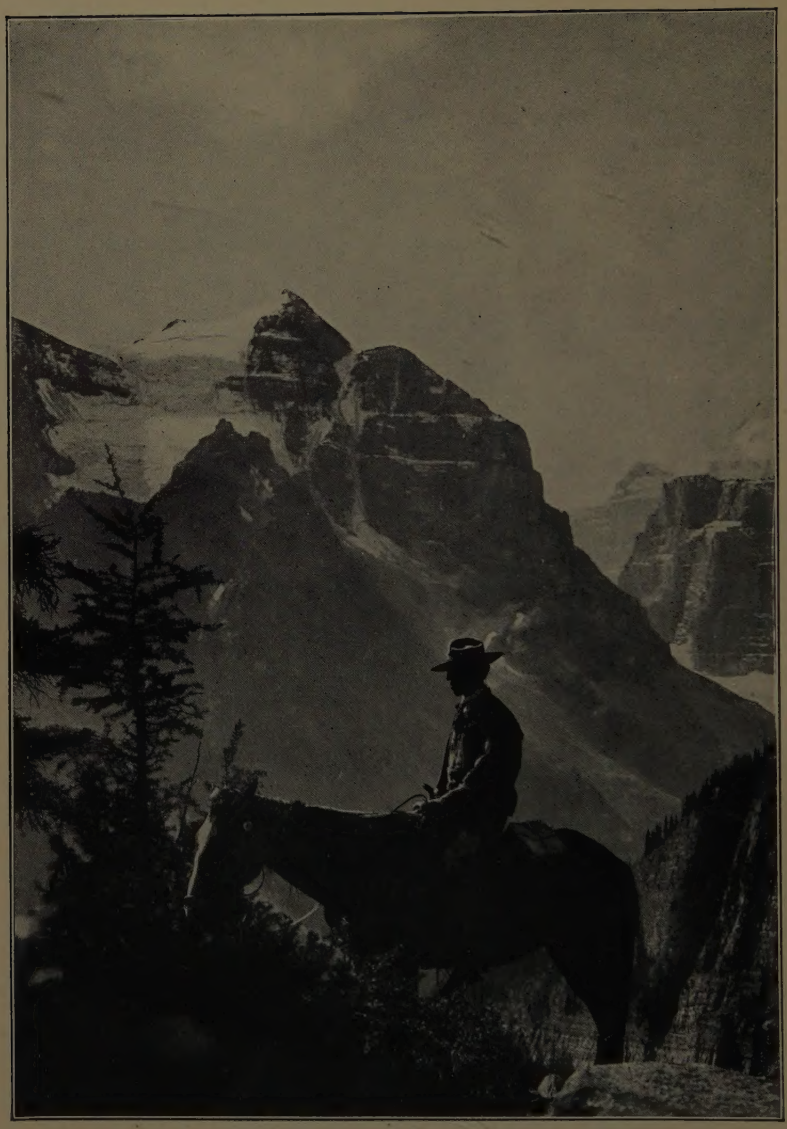

WHERE MAN FEELS CLOSE TO GOD

Canada shares with the United States the glories of the Rockies, which invite the traveller ever westward and, once seen, cast a spell that is never shaken off.

CARPENTER'S WORLD TRAVELS

CANADA AND NEWFOUNDLAND

BY
FRANK G. CARPENTER
LITT.D., F.R.G.S.

WITH 116 ILLUSTRATIONS
FROM ORIGINAL PHOTOGRAPHS

GARDEN CITY NEW YORK
DOUBLEDAY, PAGE & COMPANY
1924

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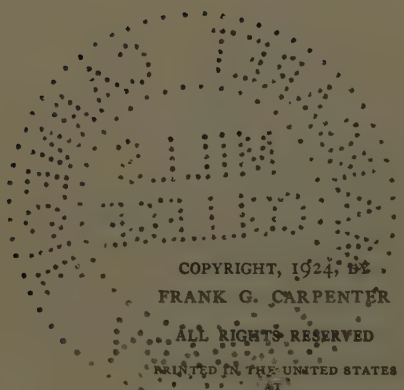

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First Edition

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IN THE publication of this volume on my travels in Canada and Newfoundland, I wish to thank the Secretary of State for letters which have given me the assistance of our official representatives in the countries visited. I thank also the Secretary of Agriculture and our Secretary of Labour for appointing me an Honourary Commissioner of their Departments in foreign lands. Their credentials have been of great value, making accessible sources of information seldom opened to the ordinary traveller.

To the officials of the Dominions of Newfoundland and Canada I desire to express my thanks for exceptional courtesies which greatly aided me in my investigations.

I would also thank Mr. Dudley Harmon, my editor, and Miss Ellen McB. Brown and Miss Josephine Lehmann, my associate editors, for their assistance and coöperation in the revision of notes dictated or penned by me on the ground.

While nearly all of the illustrations in Carpenter's World Travels are from my own negatives, those in the book have been supplemented by photographs from the official collections of the Canadian government, the Canadian National Lines, the Canadian Pacific Railway, the Publishers' Photo Service, the Holloway Studios of St. John's, N. F., and Lomen Bros., of Nome, Alaska.

F. G. C.

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CANADA
AND
NEWFOUNDLAND

CANADA AND NEWFOUNDLAND

CHAPTER I

JUST A WORD BEFORE WE START

THE country through which we shall travel in this book is the biggest on the North American continent. The Dominion of Canada is almost as big as all Europe. It is bigger than the United States and all its outlying possessions. It is thirty times as big as Great Britain and Ireland, and it has one third of all the land over which the Union Jack flies.

We shall find the country one of magnificent distances and wide, open spaces. It lies just over our boundary and reaches from there to just below the North Pole. Moreover, it is so thinly settled that it could increase its lands now under cultivation fivefold and not exhaust its available farms.

The Dominion has untold mineral and industrial wealth. It has enough natural resources to support many times its present population of nine or ten millions, and one day it will have, so Canadians tell me, as many white people as the United Kingdom and all the colonies of the British Empire have now.

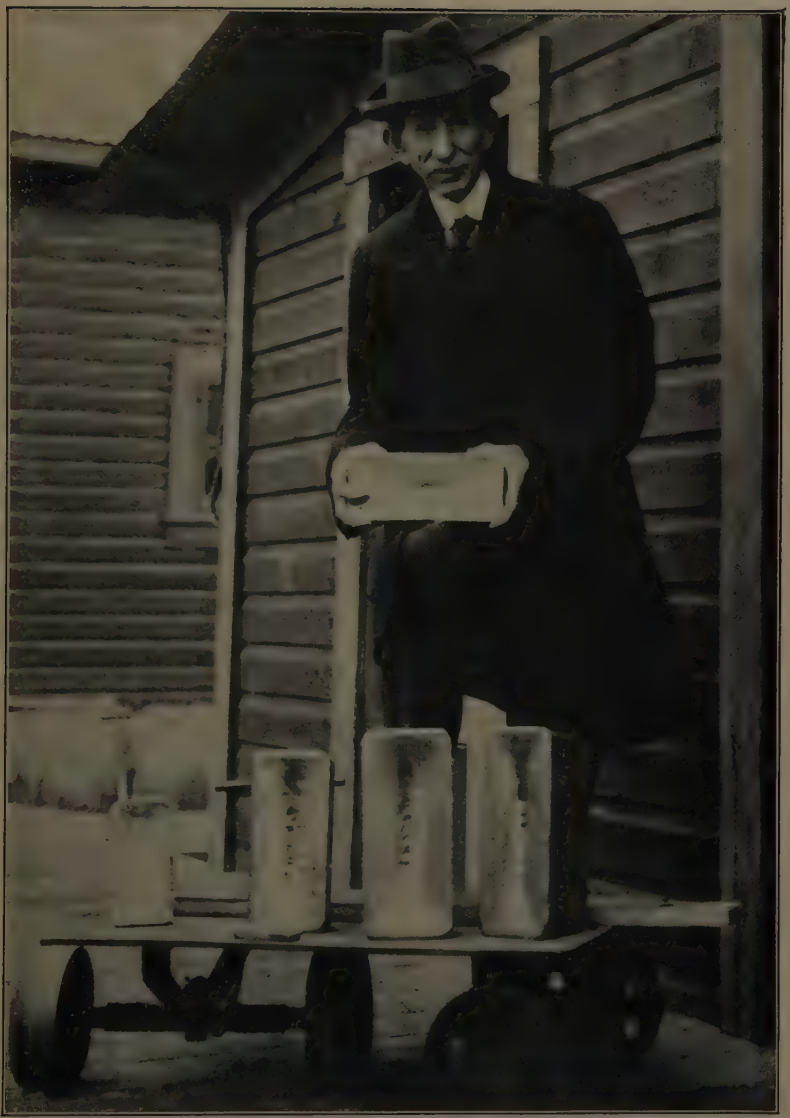
This book is the result of many journeys through Canada. I have visited the Dominion again and again in the various stages of its development, and have followed the star of the new nation as it moved ever westward. I have

stopped with the French in the St. Lawrence Valley, have travelled along the Saskatchewan when the United States farmers rushed into the wheat belt, and have seen the Klondike and the Yukon when they were still pouring streams of gold into the world.

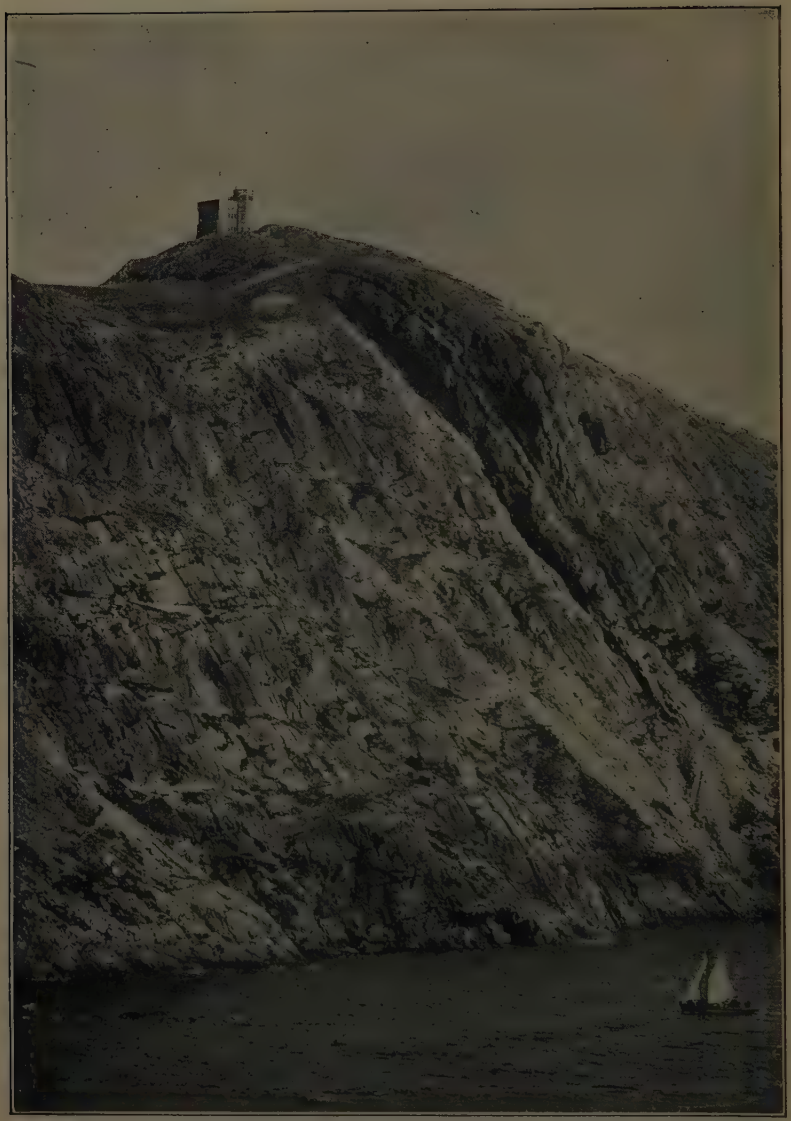
We of the United States are vitally interested in the Canadians. We are largely of the same blood, and the lines of our national lives have run along side by side. Thousands of us have relatives in the Dominion, for more than a million former American citizens are now living on the other side of the border. We have so much faith in Canada that our financial investments there are already in excess of two thousand million dollars, and our trade with it is more important to us than that of almost any other part of the world.

For this reason we shall start out knowing that we shall receive everywhere a most cordial welcome. The men and women whom we shall meet, for the most part, speak our own language, think much the same thoughts, and have the same high ideals of life. Indeed, we shall be surprised again and again at the vivid realization of our great similarity, and the rich inheritance we have received from our common ancestors.

Two empires, by the sea,
Two peoples, great and free,
One anthem raise.
One race of ancient fame,
One tongue, one faith, we claim;
One God, whose glorious name
We love and praise.



"Canada is a land of untold wealth. Its treasures extend from the humming industries of the East to the great forests and fisheries of the West, and from the golden wheatfields of the South to the bricks of the Klondike gold I saw in the Far North."



What John Cabot saw when he discovered the American continent were stern cliffs of gray rock such as this near St. John's, which now has a tower erected in his honour, five hundred feet above the water.

CHAPTER II

THE KEY TO THE ST. LAWRENCE

IMAGINE yourself aboard ship with me. We are steaming along off the coast of Newfoundland, bound north for St. John's, the capital and chief port of the oldest and smallest British dominion. Just before daybreak this morning I was awakened by a glaring light flashing full in my face. I jumped from my berth and looked out of the porthole. As I did so three blasts from the whistle tore the air and made the ship tremble, and were answered a moment later by the w-h-a-a-n-g of a foghorn from over the water. The dazzling light that had awakened me flashed around again. I knew then that we were saluting Cape Race, the southeast tip of Newfoundland, and chief signal station for the ocean traffic of the North Atlantic.

We were hardly a mile from the shore. If it had been daylight, we would have steamed closer in. The lighthouse towered high in the air, the flash seeming to come from out of the sky. Cape Race light is more than three hundred feet above the water, and, with its foghorn and the wireless station close by, tells thousands of mariners their position at sea. It is usually the first land sighted in coming to Canada across the Atlantic, and marks the point where practically every vessel in these waters changes its course.

Day has dawned since we passed Cape Race, and we

can see for miles over the bright blue ocean, silvered and dancing under the sun. The air is so fresh and crisp it is almost intoxicating. Even the dolphins, leaping and diving in graceful curves beside the ship, seem to share our feeling that it is a wonderful morning on which to be alive and at sea.

Now turn to the map in this book, and see just where we are. Like most Americans, I had always thought of Newfoundland as a sub-arctic country far to the north of us. Since leaving New York I have felt like an explorer on his way to the Pole. The fact is, however, that we have been steaming much more to the east than to the north, and are at this moment only about sixteen hundred miles from the west coast of Ireland. We have come hardly three hundred miles north of New York, but so far to the eastward that we are half way to Liverpool. We are still south of England, in the same latitude as Paris, and are not far from the shoals that form the Grand Banks of Newfoundland, famous the world over as cod-fishing grounds. Here the bed of the ocean rises to within less than five hundred feet of the surface, and the cold arctic currents meet the Gulf Stream, causing the fogs so much dreaded in this part of the Atlantic.

As seen on the map, Newfoundland is a triangle of land that nearly fills, like a plug, the gaping mouth of the Gulf of St. Lawrence, but it also commands the sea routes of the North Atlantic, and its possession by an enemy power would menace both Canada and the United States. It has an area of forty-two thousand square miles, being larger than Ireland and of about the same size as Tennessee. At first glance it seems a part of the mainland, but a closer look shows the Strait of Belle Isle separating the

island from the Labrador coast. Though in some places only eight or ten miles wide, this strait furnishes a summer-time passage for transatlantic liners to Canada.

For some years there has been talk of building a dam across the Strait of Belle Isle, to stop the icy waters of the Labrador current coming through the Strait into the Gulf of St. Lawrence. This, it is claimed, would force the Gulf Stream closer to Newfoundland, and give that country and eastern Quebec a climate as warm as that of New Jersey. How England would fare in this shifting of ocean waters no one can say; the history of the world would have been vastly different but for the present course of the Gulf Stream in relation to the British Isles. However, no one has yet offered to pay for this project, and shipping men say it would be impossible to make a dam strong enough to withstand the enormous pressure of ice, which comes down from the arctic every year in great floes of from five hundred to one thousand square miles and sometimes piles up on shore to the height of a five-story building.

The Newfoundland coast greatly resembles that of Norway. Looking shoreward, we see great headlands jutting out into the ocean, their precipitous sides rising straight out of the water for three or four hundred feet. Between them are deep bays and inlets, walled with sheer rock. At the heads of the coves and smaller bays we can see the white houses of little villages, clinging to the hillsides above tiny beaches. On top, these great rock ridges are covered with low scrub, now in red and brown autumn dress.

Now we are approaching St. John's, which has one of the famous natural harbours of the world. Our steamer heads for what seems an unbroken wall of rock, five hun-

dred feet high, and surmounted by a mighty stone tower. This is Cabot Tower, erected to commemorate the discovery of Newfoundland in 1497 by John Cabot, the Venetian mariner commissioned by Henry VII of England to find him new dominions. Except for the Vikings, five centuries earlier, Cabot was really the first to discover the North American continent, as Columbus did not reach the mainland until some years later.

Just south of the Cabot Tower is Cape Spear, the "farthest east" point of all North America. It was on these hills that Marconi received the first wireless message flashed across the Atlantic, and from them that the first transatlantic hydroplane flight was begun. On these shores, also, several of our transatlantic cables are landed.

But see, there is an opening in the wall of rock straight ahead, and we get a glimpse of the harbour and the city beyond. The passage is only six hundred feet wide, and it seems much less from the deck of our steamer. Here the French, during their brief possession of St. John's, slung chains across the Narrows to prevent the entrance of enemy ships. Inside the Narrows, the harbour is about a mile long and one half as wide. It is fringed with a forest of masts and the smokestacks of steamers. On the right is St. John's. The hill on which it is built rises so steeply from the water that we can see the whole sides of buildings, one above the other along the terraced streets. The painted brick or wooden structures give the city a rather drab appearance, which is emphasized by the absence of shade trees. This is partly because the town has been burned three times, the last time in 1892. Across the harbour the red and brown hillside is gashed here and

Like pirate ships of old, icebergs in spring hover about the rock-bound entrance to St. John's harbour. The channel is so narrow that the French once closed it to the British ships by a chain from shore to shore.

St. John's, the capital city of Newfoundland, sits high on a hill overlooking the land-locked harbour. It is the centre of the fishing industry, and the commercial metropolis of the island. Its atmosphere is distinctly British.

there with the slate gray of stone pits, or splotched with fenced-in patches of green, so steep that it is hard to imagine how they are farmed.

St. John's is not quite as large as Portland, Maine, but it is the chief city of Newfoundland and the centre of the fishing trade. The whole country has only about a quarter of a million inhabitants. It is as though the people of Toledo formed the total population of the state of Ohio. The Newfoundlanders are a mixture of English, Irish, and Scotch, with an occasional trace of French. The original Indian inhabitants have practically all disappeared. Most of the people worship at the Church of England, though Catholics also are numerous. Both denominations have cathedrals at St. John's, the Catholic edifice being especially conspicuous as viewed from the harbour. The Methodist Church is well established, and there is a sprinkling of Congregationalists. Education in Newfoundland is sectarian, each church receiving a grant from the government for the support of its schools. There is much rivalry between the churches, especially in the villages, but I am told that some of the Protestants send their children to Catholic schools, considering them better. The sons and daughters of well-to-do people usually go to England to complete their education.

CHAPTER III

AROUND ABOUT ST. JOHN'S

COME with me for a drive around St. John's. We can hire a touring car of almost any make, but for novelty we choose a one-horse open coach. The grizzled driver tells us times are dull with him just now, the taxis getting most of the trade, but that he will have the best of it in December, when the cars are laid up until spring on account of the snow. St. John's has an average of about four feet of snow in a season, but I have seen pictures of the streets snowed in to the roofs of the houses. The thermometer rarely falls below zero, but once the snows begin, the ground is covered until April.

The chief business street of St. John's is strung out for a mile or more just back of the wharves. It is lined on both sides with three- and four-story wood and brick buildings. Among the most modern is the home for sailormen built by the Doctor Grenfell mission of Labrador fame. Though the store windows look bright and attractive, many of the shops are tiny affairs, and the street seems more English than American.

I notice many branches of Canadian banks, which monopolize the banking business of Newfoundland. Contrary to the belief of many Americans, Newfoundland politically is no more a part of Canada than it is of New Zealand. It is a separate dominion of the British Empire,

to which its people are enthusiastically devoted, having more than once refused to be federated with Canada. They will tell you that the name of their country is pronounced with the accent on the last syllable—Newfound-*land*.

The main street of St. John's has a trolley running practically its entire length. Whenever the conductor collects a fare, he puts a little ticket in a tiny cash register that he carries in his hand. Like all the Newfoundlanders I have met, the car men are most courteous. One of them left his car to ask a policeman on the corner to direct me to the American consulate. Indeed, I like these Newfoundlanders. They are cordial and hospitable and most polite, though sometimes I have difficulty in understanding their Anglicized speech. I was told on the ship that I would see none but natural complexions in St. John's, and as far as I have observed that is true, all the girls having bright rosy cheeks. Both men and women here are long lived.

Our driver is now asking us to look at the government buildings. They are high up above the harbour and surrounded by beautiful grounds. The party having a majority in the lower house of parliament forms the government and names the premier and his ministers. The upper house, called the Legislative Assembly, consists of twenty-four members appointed by the governor in council. The members of the lower house are elected for terms of four years and meet every year. While the humblest fisherman may be elected to parliament, Newfoundland has not yet granted women the vote. It has no divorce laws.

Our next stop is at the west end of St. John's, where the Waterford River empties into the harbour. Here is a

valley covered with truck gardens, and beyond lies a park given to the city by one of its titled shipping magnates. It is said that spring comes here two weeks earlier than in the eastern end of town. The reason for this is that while the fogs and the winds from the sea sweep over the bluffs at the harbour entrance, they rarely penetrate to the valley.

Driving back to town we pass the station of the Newfoundland Government Railway, a narrow gauge line that covers the most important parts of the island. It runs far to the north, then to the west shore, and down to Port aux Basques at the southwest. Branches jut out here and there, linking the port towns with the main line and the capital. The greater part of the south shore has no railroad, nor is there yet any line into the Barbe Peninsula, which extends northward to Belle Isle Strait. There is talk of bridging the Strait and connecting Newfoundland with Canada by a rail line through northeastern Quebec.

The manager of the railroad tells me that the Newfoundland line is unique in that its passenger revenues exceed its freight earnings. The reason for this is that most of the people live near the sea, and the bulk of freight goes by water. On the cross country route there are many steep grades, for the interior is hilly, although the highest point on the island is only two thousand feet above sea level. The railroad skirts the shores of hundreds of lakes, of which Newfoundland has more than it has found time to count. It is estimated that one third of the land lies under water. I met a man to-day, just returned from a hunting trip forty miles inland, who told me that he had stood on a hilltop and counted one hundred lakes and ponds in plain sight. He has a friend who has fished in no

less than forty different ponds within a half mile of his camp. Grand Lake, on the west side, is more than fifty-six miles long, and two others are nearly as large.

American sportsmen have already discovered in Newfoundland hunting and fishing grounds that rival those of Canada, and some of our rich Americans have permanent camps along the rivers and streams on the south and the west coasts, to which they come every summer for salmon. The railroad manager promises that if I will take the train across country I shall see herds of caribou from the car window.

Much of the land along the railway has been burned over, but nevertheless the country has ten thousand square miles of well-timbered land, worth as it stands five hundred million dollars. Some is being cut for lumber, and more for mine props that go to England and Wales. The chief use of the forests at present is to furnish pulp wood for news print. Lord Northcliffe built at Grand Falls a six-million-dollar plant, operated by water-power, to supply his newspapers and magazines, and an even larger project, to cost twenty-five million dollars, is now under way at the mouth of the Humber River, on the west coast. The scenery there is much like that of the fiords of Norway.

The chief agricultural development of Newfoundland is on the west side of the island, where stock is raised successfully and wintered outdoors. This section of the country has produced as much as three million pounds of beef or three times as much as the amount imported. Newfoundland is not primarily, however, an agricultural country. The efforts of the people have always centred largely on fishing and related industries.

Newfoundland has had its gold fevers, especially on the coast of Labrador, which it owns. So far, these have amounted to nothing. But it has one of the world's largest iron deposits, and at one time this country was an important producer of copper. It suffers commercially from its handicaps in the way of transportation, and also because of its limited supply of capital.

In studying the map of Newfoundland, I have been interested in its many fanciful names, and wish that I might see what inspired them. There are, for example, "Heart's Content" and "Heart's Ease," "Bay of Bulls" and "Leading Tickle," "Baldhead" and "Redhead Rocks." "Come by Chance" is a railroad station in eastern Newfoundland, while just to the north is "Random."

Most of the points on the Newfoundland coast were named by the early mariners who learned from experience rather than charts how to navigate these dangerous shores. To help remember sailing directions, they made up little rhymes such as this one I learned from a schooner captain just in from Labrador:

When Joe Bat's point you are abreast,
Fogo Harbour bears due west;
It's then your course that you must steer
Till Brimstone Head do appear,
And when Old Brimstone do appear,
Then Dean's Rock you need not fear.

CHAPTER IV

THE COD FISHERIES OF NEWFOUNDLAND

PERHAPS you have thought, as I did before coming here, that fish are fish, all the world over. But in Newfoundland fish are cod. The existence of the other finny creatures in the sea is recognized, but they are referred to only by their proper names. There is a story that a Newfoundlander was asked if there were any fish in a certain stream.

"No, there are no fish in here," was the reply, "nothing but trout."

The history of Newfoundland is largely the story of its cod fisheries and the contests to possess them. Cabot reported to his royal master that the waters off the Newfoundland coast were so thick with fish as to impede navigation. Not long ago cod were so plentiful that dogs caught them alive in the water as they were crowded upon the beach by the pressure of the thousands behind, and to-day the cod fisheries here are the largest of their kind in the world. Nine tenths of the people of Newfoundland still make their living either directly or indirectly from fish, and eighty per cent. of the export trade comes from them. At one time dried cod formed the national currency, and debts were paid in kind. This fall, as for many years, thousands of fishermen are paying for their spring outfits, and for flour and molasses and pork on which they will subsist during the coming winter, with fish.

Within a year after Cabot's voyage, fishermen from Devonshire, England, were on the Newfoundland coast, and several years later Portuguese and French fishermen were competing with them for the right to share in the phenomenal catches. Though claimed by the British by right of discovery, Newfoundland became a kind of "no man's land." Its coast was frequented by hordes of daring men, partly fishermen, partly traders, most of whom were not above a little piracy now and then. In 1578, four hundred fishing vessels were coming here every year. Of these nearly half were French. The English dominated even then, and a quarter of a century later ten thousand men and boys from the west counties of England were spending their summers in the fisheries, as catchers at sea and dryers on shore.

It is estimated that the annual catch of the English vessels was worth one hundred thousand pounds, a huge sum in those days. The "Merchant Adventurers" of England, who gained most of the profit, tried to set up a monopoly. They did their utmost to drive the French from the fishing grounds and shore stations, and discouraged all attempts to colonize Newfoundland, spreading false reports that the country was desolate and uninhabitable. At one time there were laws forbidding a fishing vessel from taking any settlers to Newfoundland and requiring it to bring back to England every man it carried away. The "Fishing Admirals," as the ancient profiteers of that industry were called, even secured an order to burn the homes of the fishermen on shore. Indeed, it was not until 1711 that England changed her cruel policy toward Newfoundland and organized the colony under a naval government.

Most of the people of Newfoundland get their living directly or indirectly from the codfish industry. The bulk of the catch is shipped abroad from St. John's, chiefly to the warm countries of the Mediterranean and the West Indies.

The fisherman's work has only begun when he has caught the cod. After cleaning them, he and his family must spread the fish out to dry every day, and stack them up every evening until they are "made."

In the meantime, bitter struggles with the French had been going on. The French recognized in Newfoundland a key to their possessions in Canada along the Gulf and River of St. Lawrence. They succeeded in gaining a foothold on the south shore of Newfoundland, and from there frequently attacked the English settlements to the north, until the Treaty of Utrecht compelled them to give up their holdings. All that remains of French possessions in this part of the world are the islands of Miquelon and St. Pierre just south of Newfoundland. With the prohibition wave that swept over North America, the port of St. Pierre has had a great boom as headquarters of the bootlegging fleets of the North Atlantic. It has grown rich by taxing the liquor traffic, so much so, in fact, that St. John's is casting envious eyes at its island neighbour, and making plans to get into this profitable trade.

I had my first glimpse of the native cod as I entered St. John's harbour. Just as our steamer passed a motor dory lying off shore, one of the men in her caught a big fish. He pulled it out of the water, and after holding it up to our view, clubbed it on the head and threw it into the boat. To-day I visited one of the fishing villages, where I saw the day's catches landed and talked with the fishermen.

I took a motor in St. John's and drove out to Waterford Valley, up over the gray rocky hills into the back country. On the heights I found a blue pond, just below it another, and then another, like so many steps leading from the heights down to the sea. The last pond ended in a great wooden flume running down the rocky gorge to a little power station that supplies electricity to the city of St. John's.

Here I stopped to take in the view. Before me was a

little bay, perhaps a half mile long and a quarter of a mile wide, where the stream from the hill ponds empties into the ocean. This was Petty Harbour, a typical Newfoundland "outport." On both sides of the harbour rocky walls rose almost straight up to a height of three or four hundred feet. The only outlets were the waters of the tiny bay and the gorge through which I came. There was literally no level land, only a few narrow shelves and terraces along the sides of the hills. There were no streets, only a winding roadway down the slope. The lower portion was too narrow for our motor, so that I had to go part of the way down on foot. The houses were placed every which way on the steep hillsides. Most of them had tiny dooryards, with a patch of grass and sometimes a few flowers in front. Behind them, or at the sides, were other patches of green, on some of which small black and white goats, wearing pokes about their necks, were feeding. Small as were the houses, each was neatness itself and shiny with paint. Every one of the hundred or so houses was built by its occupant or his father before him. Indeed, I am prepared to believe, after what I have seen, that the Newfoundland fisherman is the world's greatest "handy man." He builds not only his house, but also his boats, landing stages, and fish-drying platforms; he makes his own nets, raises his own vegetables, and often has a sheep or two to furnish wool, which his wife will spin and weave into a suit of clothes or a jersey.

Walk along with me the rest of the way down to the waterside. You must step carefully on the path that leads over and between the ridges of out-cropping rock. Behind us a troop of youngsters are proving themselves true citizens of the kingdom of boyhood by tooting the horn of our

motor. I notice many children playing about, and I ask where they go to school. In reply two little frame buildings are pointed out on the hillsides, one the Church of England school, and the other maintained by the Catholics. The children we see look happy and well fed, and the little girls especially are neatly dressed and attractive.

But here is a fisherman, drying cod, who offers to show us about. With him we clamber down to the nearest stage, built out over the rocks, its far end resting in water that is deep enough for the boats. The stages are built of spruce poles and look like cliff-dwellers' homes. At the end nearest the water is a little landing platform, with steps leading down to the motor dory moored alongside.

A boat has come in with a load of fish. They are speared one by one and tossed up to the landing stage, while one of the men starts cleaning them to show us how it is done. He first cuts the throat to the backbone, breaks off the head against the edge of the bench, and then rips open the belly. He tosses the liver to the table and the other organs to the floor, cuts out the greater part of the backbone, and throws the split, flattened-out cod into a tub at his feet. It is all done in a few seconds.

Outside there is now a great heap of cod. This fish has a gray-greenish back, a white belly, and a great gaping mouth lined with a broad band of teeth so fine that to the touch they feel like a file. One big fellow a yard long weighs, we are told, perhaps twenty-five pounds, but most of them will average but ten or twelve pounds.

These fish were caught in a net, or trap. When set in the water the cod trap measures about sixty feet square. It is moored in the sea near the shore. The fish swim into the enclosure, are caught within its walls, and cannot make

their way out. The size of the meshes is limited by law, so that the young fish may escape. Three fourths of the Newfoundland cod are taken in this manner. Fish traps may cost from six hundred to one thousand dollars each, and making them is the chief winter job of the fishermen.

Sometimes the cod are caught with trawls, or lines, perhaps three or four thousand feet long, with short lines tied on at every six feet. The short lines carry hooks, which are baited one by one, and the whole is then set in the ocean with mooring buoys at each end. The trawls are hauled up every day to remove the fish that have been caught, and to bait up again.

I had thought a fisherman's work done when he brought in his catch, but that is really only the beginning. The Newfoundland fisherman has nothing he can turn into money until his fish are salted and dried. The drying process may take a month or longer if the weather is bad. It is called "making" the fish. The flat split fish are spread out upon platforms called "flakes." The sun works the salt down into the flesh, at the same time removing the moisture. Every evening each fish must be picked up and put in a pile under cover, and then re-spread on the flakes in the morning. The children are a great help in this part of the work.

It is in the perfection of the drying, rather than by size, that fish are graded for the market. At one of the fish packing wharves in St. John's, I saw tons of dried cod stacked up like so much cord wood. They all looked alike to me, but the manager said:

"Now, the fish in this pile are for Naples, those in that for Spain, and those on the other side of the room will be sent to Brazil. It would never do to mix them, as our

Wherever there is a slight indentation on the high rock-faced coast you will find a fishing village with its landing stages and drying "flakes," built of spruce poles and boughs, clinging to the steep shore.

Arrived at the ice fields, the seal hunters armed with spiked poles scatter over the pack. They kill for their hides and fat the baby seals which every spring are born on the ice of the far north Atlantic.

Caribou are plentiful in Newfoundland. They are often seen from the train on the railroad journey across the country. The interior has thousands of lakes, one third of the island lying under water.

customers in each country have their own taste. Some like their fish hard, and some soft, and there are other differences we have to keep in mind as we sort the fish and grade them for export. The poorest fish, those you see in the corner, are for the West Indies. The people there nearly live on our fish, which will keep in their hot climate, but they can't afford to buy the best quality."

Newfoundland exports more than one hundred and twenty million pounds of dried cod every year. Brazil, Italy, Spain, and Portugal take about ninety million pounds, while the West Indies, Canada, Greece, and the United States absorb the balance. The fish are exported in casks each containing about two and a half quintals, or two hundred and eighty pounds.

While the shore fisheries account for most of the annual Newfoundland catch, there are two other ways of taking cod. The first is the "bank fishery," in which schooners go off to the Grand Banks where they put out men in small boats to fish with hook and line until a shipload is caught. The fish are cleaned and salted on board, but are dried on shore. The crews of the schooners usually share in the catch, as in our own Gloucester fishing fleets. The third kind is the Labrador fishery. Sometimes as many as nine hundred schooners will spend the summer on the Labrador coast, fishing off shore, and drying the catches on the beach. Whole families take part in this annual migration. Labrador fish do not, however, bring as good a price as Banks or offshore fish.

The prosperity of the Newfoundlanders depends every year on the price of cod. This may range from three dollars a quintal to the record prices of fourteen and fifteen dollars during the World War. Just now the price is de-

pressed, and Newfoundland is feeling competition from the Norwegians, who are underselling them in the western European and Mediterranean markets. Consequently, many Newfoundlanders, especially the young people, are emigrating to the United States. Some of the men go to New England and engage in the Massachusetts fisheries. Others ship on merchant vessels, while the girls are attracted by high wages paid in our stores, offices, and factories.

I have made some inquiries about the earnings of the Newfoundland fisherman, and find his net cash income amounts to but three or four hundred dollars a year. While he builds his own boat, he has to buy his engine, gasoline, and oil. He must buy twine and pitch for his nets, cord and hooks for his baited lines, and salt for pickling. A fisherman usually figures on making enough from the cod livers and their oil to pay his salt bill. The bones and entrails and also the livers after the oil has been removed are used as fertilizer.

The fisherman usually has no other source of income than his catch, and during the winter he does little except prepare for the next season. He goes in debt to the merchant who furnishes his outfit and the supplies for his family. His catch for the year may or may not bring as much as the amount he owes, but he must deliver it, at the current price, to the firm that gave him credit. This system accounts for the big stores in St. John's, some of which have made a great deal of money. The merchants render a real service in financing the fishermen, whom they carry through the lean years, but there are those who believe the credit system has outlived its usefulness.

Some years ago a farmer-fisherman-mechanic named

William Coaker organized the Fishermen's Protective Union, with local councils in the outports. The union organized coöperative companies that now buy and sell fish, build ships, and handle supplies of all kinds. It even built a water-power plant to furnish electricity at cost to light the men's homes. A new town, called Port Union, was developed on the northeast coast. This has become the centre of the Union activities, and there its organizer, now Sir William Coaker, spends his time. The Union publishes a daily paper in St. John's. Its editor tells me that in the last ten years the dividend rate paid by the F. P. U. companies was ten per cent. for eight years, eight per cent. for one year, and none at all for only one year. The Union went into politics, and for three elections has had eleven members in the lower house. By combination with other groups this bloc has held the balance of power. While the Union has a strong voice in the government, the conservative business houses seem to be the dominant influence here in St. John's, where, quite naturally, the fishermen's organization finds little favour.

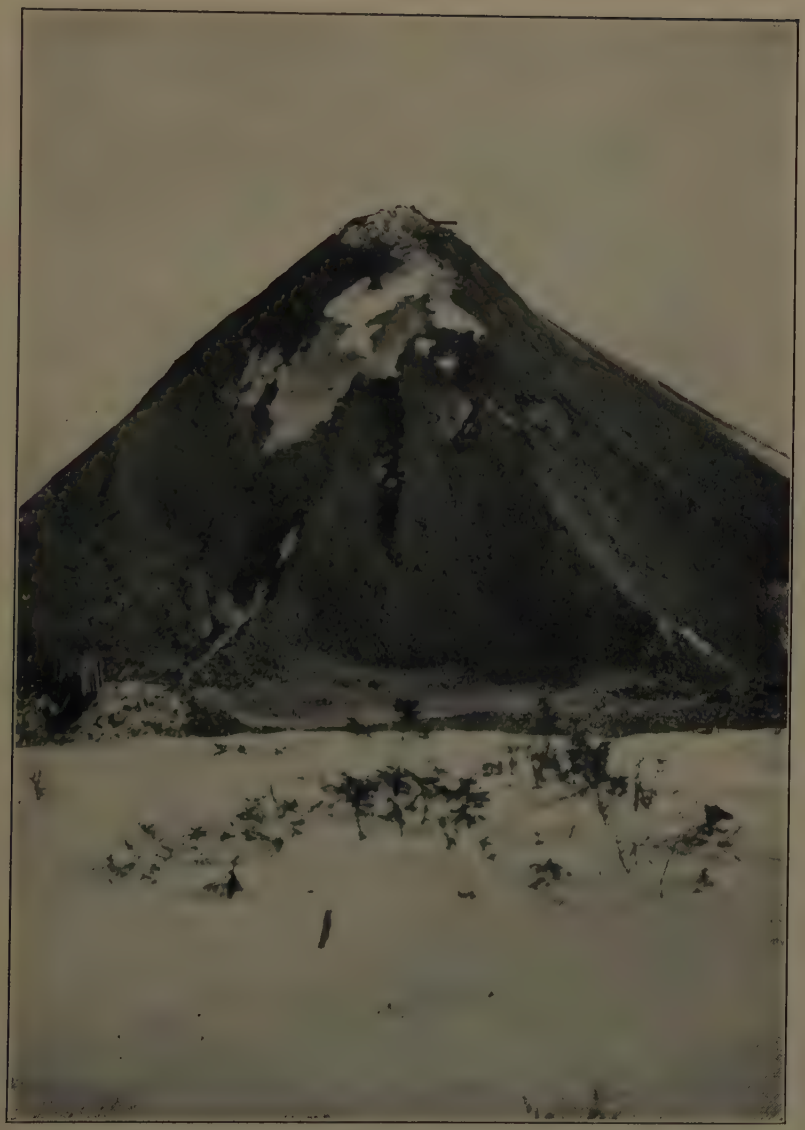
St. John's is the centre for the Newfoundland sealing industry. This is not the seal that yields my lady's fine furs, but the hair seal, which is killed chiefly for its fat, although the skin is used to make bags, pocketbooks, and other articles of leather. The oil made from the fat is used as an illuminant, a lubricant, and also for some grades of margarine.

The annual seal hunt starts from St. John's on March 13th. The sealing steamers carry from two hundred to three hundred and fifty men each, packed aboard like sardines in a can. The vessels make for the great ice floes off the northeast coast, and it is on the ice that the seals

are taken. The animals spend the winter in waters farther south, but assemble in enormous herds each January and start north toward the ice. Within forty-eight hours after reaching the ice-field, some three hundred thousand mother seals give birth to as many babies. The baby seals gain weight at the rate of four pounds a day, and rapidly take on a coating of fat about two and a half inches thick. When they are six weeks old, they leave their parents and start swimming north. It is a matter of record that the parents reach the ice and the young are born in almost the same spot in the ocean, and on almost the same day, year after year.

I visited one of the sealers. It happened to be the *Terra Nova*, the ship in which Captain Scott explored the Antarctic. It was a black craft, designed to work in the ice-fields and carry the maximum number of men and seals. I held in my hands one of the six-foot poles, called "bats," with which the seals are clubbed to death on the ice. Once the ship reaches the ice-pack, the hunting parties scramble overboard and make a strike for the seals. The ice is usually rough and broken, and a man must make sure that he can get back to his ship. Each hunter kills as many seals as he can, strips off the skin and layer of fat, and leaves the carcass on the ice. The skins and fat are brought back to the ship. The baby seals are the ones that are preferred, for since they feed only on their mothers' milk, the oil from their fat is the best. Seal hunting is exciting and dangerous work while it lasts, though from a sporting standpoint baby seals can hardly be considered big game.

The start of the annual seal hunt is a great occasion for St. John's. Two thirds of the proceeds of each catch are



During the winter season the red iron ore from the Wabana mines is stored in huge piles. In the summer it is shipped by steamer to the company's steel mills in Nova Scotia.

The annual race between schooners of the rival fleets from Nova Scotia and Gloucester, Massachusetts, is a unique sporting event. Every other year the contenders meet on a course off Halifax harbour.

divided among the crew, the steamer owner taking the balance. It is an old saying in Newfoundland that "a man will go hunting seals when gold will not draw him." The ships usually return by the middle of April. In a good year each man may get about one hundred and fifty dollars as his share.

From one hundred and fifty to three hundred thousand seals are brought into St. John's every year. At the factories gangs of skinners strip off the fat from the hides as fast as they are landed. Sometimes one man will strip as many as six hundred and forty skins in a day. The fat is chopped up and steam cooked, and the oil drawn off into casks. The skins are salt dressed.

One might think the seals would be wiped out by such methods, but the herd does not decrease and remains at about one million from year to year. The seals live largely on codfish, each one eating an average of four every day. The estimated consumption of cod by the seals is fourteen times greater than the number caught by the fishermen.

CHAPTER V

IRON MINES UNDER THE SEA

I HAVE just returned from a trip through caves richer than those of Aladdin. They lie far under the ocean, and their treasures surpass the wildest dreams of the Arabian Nights. The treasures are in iron ore, from forty nine to fifty two per cent. pure, and so abundant that they will be feeding steel mills for many generations to come.

I am speaking of the Wabana iron mines, located on, or rather under, Conception Bay on the southeast coast of Newfoundland. They are on an island seven miles long, three miles in width, and three hundred feet high. Along about a generation ago deposits of rich hematite ores were discovered in veins that ran down under the water with a slope of about fifteen degrees. They were gradually developed and within the last thirty years millions of tons of ore have been taken out. The under-sea workshops have been extended more than two miles out from the shore and it is believed that the great ore body crosses the bay. The capacity yield at this time averages about five thousand tons for every working day of the year, and the location is such that the ore can be put on the steamers for export almost at the mouth of the mines. The property is owned by the British Empire Steel Company, made up of British, American, and Canadian capital.

But let me tell you of my trip. I left my hotel in St.

John's in the early morning. The rocky promontories that form the narrow entrance to the harbour were canopied in light fog, under which fishing schooners could be seen tacking back and forth, beating their way out to the open sea beyond. As we drove out over the hills the moisture gathered on the windshield of the motor-car so that we had to raise it and take the fog-soaked air full in our faces. We went through King's Road, where many of the aristocracy of St. John's reside in big frame houses with many bay windows and much gingerbread decoration. They were set well back from the street, and, in contrast with most of the houses of the town, were surrounded by trees.

As we reached the open country, rolling hills stretched away in the mist. They were gray with rock or red-brown with scrub. Here and there were patches of bright green, marking vegetable gardens or tiny pastures for a cow or goat. The growing season in Newfoundland is short, and the number of vegetables that can be successfully raised is limited. I saw patches of cabbages, turnips, and beets, and several fields of an acre or more that had yielded crops of potatoes. Most of the fields were small, and some no bigger than dooryards. All were fenced in with spruce sticks. The houses were painted white, and had stones or turf banked up around their foundations. A few farms had fairly large barns, but most had no outbuildings except a vegetable cellar built into a hillside or half-sunk in the ground.

Newfoundlanders follow the English fashion of driving on the left-hand side of the road. It made me a bit nervous, at first, whenever we approached another vehicle. It seemed certain that we would run into it unless we swung to the right, but of course it always moved to the left, giv-

ing us room on what an American thinks of as the "wrong side of the road."

We met an occasional motor-car, and many buggies, but every few minutes we passed the universal vehicle of Newfoundland, the two-wheeled "long cart," as it is called. Strictly speaking, it is not a cart at all, in our sense of the word, as it has no floor or sides. It consists of a flat, rectangular frame of rough-hewn poles, balanced like a see-saw across an axle joining two large wooden wheels. The long cart is the common carrier of all Newfoundland. It is used on the farms, in the towns, and in the fishing villages. One of these carts was carrying barrels of cod liver oil to the refinery at St. John's, while on another, a farmer and his wife sat sidewise, balancing themselves on the tilting frame.

After a drive of ten miles we reached Portugal Cove, where I waited on the wharf for the little steamer that was to take me to Bell Island, three miles out in the Bay. The men of the village were pulling ashore the boat of one of their number who had left the day before to try his luck in the States. The boat was heavy, and seemed beyond their strength. Some one called out: "Come on, Mr. Chantey Man, give us Johnny Poker," whereupon one of the men led in a song. On the last word, they gave a mighty shout and a mighty pull. The boat moved, and in a moment was high and dry on the beach.

This was the chantey they sang:

Oh, me Johnny Poker,
And we'll work to roll her over,
And it's Oh me Johnny Poker *all.*

The big pull comes with a shout on the final word "all."

After a few minutes on the little mine steamer, I saw

Bell Island loom up out of the fog. Its precipitous shore rose up as high and steep as the side of a skyscraper, but black and forbidding through the gray mist. I was wondering how I could ever reach the top of the island when I saw a tiny box car resting on tracks laid against the cliff side, steeper than the most thrilling roller coaster. The car is hauled up the incline by a cable operated by an electric hoist at the top of the hill. I stepped inside, and by holding on to a rail overhead was able to keep my feet all the way up. Nearly everybody and everything coming to Bell Island is carried up and down in this cable car.

From the top of the cliff, I drove across the island toward the mines, and had all the way a fine view of the property. The mine workings are spread out over an area about five miles long and two miles in width. The houses of the miners are little box-like affairs, with tiny yards. Those owned by the company are alike, but those built by the miners themselves are in varying patterns.

The miners are nearly all native Newfoundlanders. They are paid a minimum wage, with a bonus for production over a given amount, so that the average earnings at present are about three dollars and fifty cents a day. When the mines are working at capacity, about eighteen hundred men are employed.

The offices of the company occupy a large frame structure. In one side of the manager's room is a great window that commands a view of the works. Looking out, my eye was caught first by a storage pile of red ore higher than a six- or seven-story building. No ore is shipped during the winter because of the ice in the Bay, and the heavy snows that block the narrow gauge cable railway from the mines to the pier. Also, since the ore is wet as it comes

out of the mine, it freezes during the three-mile trip across the island. This makes it hard to dump and load. Another difficulty about winter operations above ground comes from the high winds that sweep over the island, sometimes with a velocity of eighty miles an hour.

With the manager I walked through the village, passing several ore piles, to one of the shaft houses. Trains of cars are hauled by cable from the depths of the mine to the top of the shaft house, where their contents are dumped into the crusher. From the crusher the broken rock is loaded by gravity into other cars and run off to the storage piles or down to the pier. The cable railways and crushers are operated by electricity, generated with coal from the company's mines at Sydney, Nova Scotia. The same power is used to operate the fans that drive streams of fresh air into the mines and to work the pumps that lift the water out of the tunnels.

At the shaft house I put on a miner's working outfit, consisting of a suit of blue overalls, rubber boots, and a cap with its socket above the visor for holding a lamp. These miners' lamps are like the old bicycle lanterns, only smaller. The lower part is filled with broken carbide, on which water drips from a reservoir above and forms acetylene gas.

I was amazed at the ore trains that came shooting up out of the mine at from thirty to forty miles an hour, and trembled at the thought of sliding down into the earth at such speed, but my guide gave the "slow" signal and we began our descent at a more moderate rate.

I sat on the red, muddy bottom of an empty ore car. My feet reached almost to the front and I could just comfortably grasp the tops of the sides with my hands. It

was like sitting upright in a bathtub. As we plunged into the darkness, the car wheels roared and rattled like those of a train in a subway. My guide shouted in my ear that the shaft was fifteen feet wide, and about eight feet from ceiling to floor. I noticed that some of the timber props were covered with a sort of fungus that looked like frost or white cotton, while here and there water trickling out of the rock glistened in the light of our lamps.

As we descended the air grew colder. It had a damp chill that bit to the bone, and though our speed kept increasing there seemed to be no end to the journey. Suddenly, out of the darkness I saw three dancing lights. Were they signals to us of some danger ahead? Another moment, and the lights proved to be lamps in the caps of three miners, drillers who had finished their work for the day and were toiling their way up the steep grade to the world of fresh air and warm sunshine.

Another light appeared ahead. Our train slowed up and stopped on a narrow shelf deep down in the earth and far under the ocean. Just ahead, the track plunged steeply down again into the darkness. We were at the station where the underground trains are controlled by electric signals. On each side curved rails and switches led off into branching tunnels.

For an hour or more we walked about in the under-sea workings. At times we were in rock-walled rooms where not a sound could be heard but the crunch of the slippery red ore under our rubber-booted feet, or the sound of water rushing down the steep inclines. At other times the rock chambers reverberated with the chugging and pounding of the compressed air drills boring their way into the rock.

We went to the head of a new chamber where a gang was

loading ore into the cars. There was a great scraping and grinding of shovels against the flinty rock as the men bent their backs to their work. The miners' faces were streaked with sweat and grimy with smears of the red ore. I picked up a piece. It was not as big as a dinner plate, but was almost as heavy as lead.

We rode out of the mine at top speed. Upon reaching the surface, the air of the chilly foggy day felt positively hot, while the sunlight seemed almost unreal after the dampness below.

Halifax has a fine natural harbour well protected by islands and with sufficient deep water anchorage for great fleets. The port is handicapped, however, by the long rail haul from such centres of population as Montreal and Toronto.

Cape Breton Island has a French name, but it is really the land of the Scotch, where village pastors often preach in Gaelic, and the names in their flocks sound like a gathering of the clans.

CHAPTER VI

THE MARITIME PROVINCES

I HAVE come into Canada through the Maritime Provinces, which lie on the Atlantic Coast between our own state of Maine and the mouth of the St. Lawrence. The Provinces are Nova Scotia, New Brunswick, and Prince Edward Island. Their area is almost equal to that of our six New England states, and in climate and scenery they are much the same. Their population, however, is only about one million, or little more than one fourth as many as the number of people living in Massachusetts. These provinces were the first British possessions in Canada, and like New England they have seen the centre of population and progress move ever westward.

Nova Scotia is the easternmost province of the Dominion of Canada. Its capital and chief city is Halifax, situated on the Atlantic on one of the world's best natural harbours. This is a deep water inlet ten miles in length, which is open all the year round. Montreal and Quebec are closed to navigation during the winter months on account of the freezing of the St. Lawrence.

Halifax is six hundred miles closer to Europe than is New York, and nearer Rio de Janeiro than is New Orleans. As the eastern terminus of the Canadian National Railways, it has direct connections with all Canada. With these advantages, the city hopes to become one of the great shipping centres on the North Atlantic.

Halifax has long been noted as the most English city in Canada. It was once the military, naval, and political centre of British North America, and gay with the social life of British officers and their ladies. Now, both the warships and the soldiers are gone, and the city is devoting itself to commercial activities.

As we steamed past the lighthouses and the hidden guns on the headlands guarding the entrance, I was reminded of all that this harbour has meant to America. The city was founded by Lord Cornwallis in 1749 at the suggestion of Boston merchants who complained that the French were using these waters as a base for their sea raiders. Less than thirty years later it provided a haven for Lord Howe when he was driven out of Boston by our soldiers of the Revolution, and became the headquarters for the British operations against the struggling colonies. In the war of 1812, the American warship *Chesapeake* was brought here after her defeat by the British frigate *Shannon*. During our Civil War Halifax served as a base for blockade runners, and the fortunes of some of its wealthy citizens of to-day were founded on the profits of this dangerous trade. No one dreamed then that within two generations England and America would be fighting side by side in a World War, that thousands of United States soldiers would sail from Halifax for the battlefields of Europe, or that an American admiral, commanding a fleet of destroyers, would establish his headquarters here. Yet that is what happened in 1917–18. All that now remains of the former duels on the sea is the annual sailing race between the fastest schooners of the Gloucester and the Nova Scotia fishing fleets.

Halifax is built on a hillside that rises steeply from the water-front to a height of two hundred and sixty feet above

the harbour. The city extends about halfway up the hill, and reaches around on both sides of it. The top is a bare, grassy mound, surmounted by an ancient citadel.

Stand with me on the edge of the old moat, and look down upon Halifax and its harbour. Far to our left is the anchorage where occurred one of the greatest explosions the world ever knew. Just as the city was eating breakfast on the morning of December 6, 1917, a French munitions ship, loaded with benzol and TNT, collided with another vessel leaving the harbour, and her cargo of explosives blew up in a mighty blast. Nearly two thousand people were killed, six thousand were injured, and eleven thousand were made homeless. Hardly a pane of glass was left in a window, and acres of houses were levelled to the ground. A deck gun was found three miles from the water, and the anchor of one of the vessels lies in the woods six miles away, where it was thrown by the explosion. A street-car conductor was blown through a second-story window, and a sailor hurled from his ship far up the hillside. Since then much of the devastated area has been rebuilt along approved town-planning lines, but the scars of the disaster are still visible. For a long time after the explosion, the local institution for the blind was filled to capacity, and one saw on the streets many persons wearing patches over one eye.

Standing on the hill across the harbour one sees the town of Dartmouth, where much of the industrial activity of the Halifax district is centred. There are the largest oil works, chocolate factories, and sugar refineries of Canada. Vessels from Mexico, South America, and the British West Indies land their cargoes of tropical products at the doors of the works. Fringing the water-front

are the masts of sailing vessels and the smokestacks of steamers. Among the latter is a cable repair ship, just in from mending a break in one of the many submarine telegraph lines that land on this coast. Next to her is a giant new liner, making her first stop here to add to her cargo some twenty-five thousand barrels of apples from the Annapolis Valley. This valley, on the western side of Nova Scotia, is known also as "Evangeline Land." It was made famous by Longfellow's poem based on the expulsion of the French Acadians by the English because they insisted on being neutral in the French-British wars. It is one of the finest apple-growing districts in the world, and sends annually to Europe nearly two million barrels. Many descendants of the former French inhabitants have now returned to the land of their ancestors.

Looking toward the mouth of the harbour, we see the new terminal, a twenty-five million dollar project that has for some years stood half completed. Here are miles and miles of railroad tracks, and giant piers equipped with modern machinery, a part of the investment the Dominion and its government-owned railway system have made to establish Halifax as a first-class port. Beyond the port works another inlet, Northwest Arm, makes its way in between the hills. I have motored out to its wooded shores, which in summer time are crowded with the young people of Halifax, bathing and boating. It is the city's chief playground and a beautiful spot.

But now take a look at the city itself, stretching along the water-front below where we stand. The big red brick building just under our feet is the municipal market. There, on Saturdays, one may see an occasional Indian, survivor of the ancient Micmacs, and Negroes who are

descendants of slaves captured by the British in Maryland when they sailed up the Potomac and burned our Capitol. Farther down the hillside are the business buildings of the city, none of them more than five stories high, and all somewhat weatherbeaten. I have seen no new construction under way in downtown Halifax; the city seems to have missed the building booms of recent years. Most of the older houses are of stone or brick. Outside the business district the people live in wooden frame houses, each with its bit of yard around it. One would know Halifax for an English town by its chimney pots. Some of the houses have batteries of six or eight of these tiles set on end sticking out of their chimneys.

The streets are built on terraces cut in the hillside, or plunging down toward the water. Some of them are so narrow that they have room for only a single trolley track, on which are operated little one-man cars. I stepped for a moment into St. Paul's Church, the first English house of worship in Canada. Its front pew, to the left of the centre aisle, is reserved for the use of royal visitors. Passing one of the local newspaper offices, I noticed a big crowd that filled the street, watching an electric score board that registered, play by play, a World Series baseball game going on in New York. The papers are full of baseball talk, and the people of this Canadian province seem to follow the game as enthusiastically as our fans at home.

My nose will long remember Halifax. In lower Hollis Street, just back from the water-front, and not far from the low gray stone buildings that once quartered British officers, I smelled a most delicious aroma. It was from a group of importing houses, where cinnamon, cloves, and all the products of the East Indies are ground up and

packed for the market. If I were His Worship, the Mayor of Halifax, I should propose that Hollis street be renamed and called the Street of the Spices. Just below this sweet-scented district, I came to a tiny brick building, with a sign in faded letters reading "S. Cunard & Co., Coal Merchants." This firm is the corporate lineal descendant of Samuel Cunard, who, with his partners, established the first transatlantic steamship service nearly a century ago, and whose name is now carried all over the world by some of the greatest liners afloat.

Another odour of the water-front is not so sweet as the spices. It is the smell of salt fish, which here are dried on frames built on the roofs near the docks. Nova Scotia is second only to Newfoundland in her exports of dried cod, and all her fisheries combined earn more than twelve million dollars a year. They include cod, haddock, mackerel, herring, halibut, pollock, and salmon. Lunenburg, down the coast toward Boston, is one of the centres of the deep-sea fishing industry, and its schooners compete on the Grand Banks with those from Newfoundland, Gloucester, and Portugal.

I talked in Halifax with the manager of a million-dollar corporation that deals in fresh fish. He was a Gloucester man who, as he put it, "has had fish scales on his boots" ever since he could remember.

"We operate from Canso, the easternmost tip of Nova Scotia," he said. "Our steamers make weekly trips to the fishing grounds, where they take the fish with nets. They are equipped with wireless, and we direct their operations from shore in accordance with market conditions. While the price of salt fish is fairly steady, fresh fish fluctuates from day to day, depending on the quanti-

ties caught and the public taste. Such fish as we cannot sell immediately, we cure in our smoking and drying plants.

"All our crews share in the proceeds of their catch, and the captains get no fixed wages at all. We could neither catch the fish nor sell them at a profit without the fullest coöperation on the part of our men, most of whom come from across the Atlantic, from Denmark, Norway, and Sweden, and also from Iceland. Next to the captain, the most important man on our ships is the cook. Few fish are caught unless the fishermen are well fed. The 'cook's locker' is always full of pies, cakes, and cookies, to which the men help themselves, and the coffee-pot must be kept hot for all hands to 'mug up.'"

From Halifax I crossed Nova Scotia by rail into the adjoining province of New Brunswick. Nova Scotia is a peninsula that seems to have been tacked on to the east coast of Canada. It is three hundred and seventy-four miles long, and so narrow that no point in it is more than thirty miles from the sea. The coast does not run due north and south, but more east and west, so that its southernmost tip points toward Boston. The Bay of Fundy separates it from the coasts of Maine and New Brunswick, and leaves only an isthmus, in places not more than twenty miles wide, connecting Nova Scotia with the mainland. The lower or westernmost half of the province is encircled with railroads, which carry every year increasing thousands of tourists and hunters from the United States. The summer vacationists and the artists go chiefly to the picturesque shore towns, while those who come up for hunting and fishing strike inland to the lakes and woods. Deer and moose are still so plentiful in Nova

Scotia that their meat is served at Halifax hotels during the season.

The scenery is much like that of Maine. Rolling hills alternate with ledges of gray rock, while at every few miles there are lakes and ponds. Much of the country is covered with spruce, and many of the farms have hedges and tall windbreaks of those trees. The farmhouses are large and well built; they are usually situated on high ground and surrounded by sloping fields and pastures considerably larger than the farm lots of New England. In some places the broad hills are shaped like the sand dunes of Cape Cod. At nearly every station freshly cut lumber was piled up, awaiting shipment, while one of the little rivers our train crossed was filled with birch logs floating down to a spool factory.

Some two hours from Halifax we came to Truro at the head of Cobequid Bay, the easternmost arm of the Bay of Fundy. Scientists who have studied the forty-foot Fundy tides attribute them to its pocket-like shape. The tides are highest in the numerous deep inlets at the head of the Bay. In the Petitcodiac River, which forms the northernmost arm, as the tide comes in a wall of water two or three feet high rushes upstream. These tides are felt far back from the coast. The rivers and streams have deep-cut banks on account of the daily inrush and outflow of waters and are bordered with marshes through which run irrigation ditches dug by the farmers.

Truro is a turning-off point for the rail journey down the Bay side of Nova Scotia through "Evangeline Land" and the Annapolis Valley, and also for the trip north and east up to Cape Breton Island. This island is part of the province of Nova Scotia. It is separated from the main-

With his poem of *Evangeline*, Longfellow made famous the old well at Grand Pré, the scene of the expulsion of the Acadians because they wanted to remain neutral in the French-British wars.

When the tide goes out at Digby, vessels tied to the docks are left high and dry. At some points on the Bay of Fundy the rise and fall of the water exceeds forty feet.

Because of the deep snows in winter the Quebec farmhouse usually has high porches and often a bridge from the rear leading to the upper floor of the barn. The older houses are built of stone.

Spinning wheels and hand looms are still in use among the French Canadian farm women. Besides supplying clothes for their families, they make also homespuns and rugs for sale.

land only by the mile-wide Strait of Canso, across which railroad trains are carried on ferries. In the southern part of the Island is the Bras d'Or Lake, an inland sea covering two hundred and forty square miles.

Though Cabot landed on the coast of Cape Breton Island after his discovery of the Newfoundland shore, it later fell into the hands of the French. They found its fisheries worth more than all the gold of Peru or Mexico. To protect the sea route to their St. Lawrence territories, they built at Louisburg a great fortress that cost a sum equal to twenty-five million dollars in our money. To-day, hardly one stone remains upon another, as the works were destroyed by the British in 1758. Not far from Louisburg is Glace Bay, where Marconi continued the wireless experiments begun in Newfoundland, and it was on this coast, also, that the first transatlantic cable was landed.

Cape Breton Island was settled mostly by Scotch, and even to-day sermons in the churches are often delivered in Gaelic. As a result of intermarriage sometimes half the people of a village bear the same family name. For generations these people lived mostly by fishing, but the opening of coal mines in the Sydney district brought many of them into that industry. The Sydney mines, which normally employ about ten thousand men, are the only coal deposits on the continent of North America lying directly on the Atlantic Coast. They are an asset of immense value to Canada, yielding more than one third of her total coal production. One of the mines at North Sydney has the largest coal shaft in the world. Because of these enormous deposits of bituminous coal, and the presence near by of dolomite, or limestone, steel industries

have been developed in the Sydney district. Ownership of most of the coal and steel properties has been merged in the British Empire Steel Corporation, one of the largest single industrial enterprises in all Canada. It is this corporation, you will remember, that owns the Wabana iron mines in Newfoundland.

In the Gulf of St. Lawrence, and north of the isthmus connecting Nova Scotia with the mainland, is Prince Edward Island, the smallest, but proportionately the richest province in the Dominion of Canada. It is not quite twice the size of Rhode Island, and has less than one hundred thousand people, but every acre of its land is tillable and most of it is cultivated. The island is sometimes called the "Garden of the Gulf."

Prince Edward Island is a favourite resort of Americans on vacation. It leaped into fame as the scene of the first successful experiments in raising foxes for their furs, and now has more than half of the fox farms in Canada. The business of selling fox skins and breeding stock is worth nearly two million dollars a year to the Prince Edward Islanders. The greatest profits are from the sales of fine breeding animals.

Most of the west shore of the Bay of Fundy and many of its northern reaches are in the third and westernmost of the three Maritime Provinces. This is the province of New Brunswick. It is Maine's next-door neighbour, and almost as large, but it has less than half as many people. The wealth of New Brunswick, like that of Maine, comes chiefly from the farms, the fisheries, and the great forests that are fast being converted into lumber and paper. Its game and fresh-water fishing attract a great many sportsmen from both the United States and Canada.

St. John, the chief city of New Brunswick at the mouth of the St. John River, used to be a centre of anti-American sentiment in Canada. This was because the city was founded by the Tories, who left the United States after we won our independence. St. John to-day is a busy commercial centre competing with Halifax for first place as Canada's all-year Atlantic port. It is the eastern terminal of the Canadian Pacific Railroad, whose transatlantic liners use the port during the winter. It enjoys the advantage over Halifax of being some two hundred miles nearer Montreal, but, like Halifax, suffers on account of the long railway haul and high freight rates to central Canada. As a matter of fact, New England, and not Canada, is the natural market for the Maritime Provinces, and every few years the proposal that this part of Canada form a separate Dominion comes up for discussion. Such talk is not taken seriously by the well informed, but it provides a good safety valve for local irritation.

CHAPTER VII

IN FRENCH CANADA

COME with me for a ride about Quebec, the oldest city in Canada, the ancient capital of France in America, and a stronghold of the Catholic Church. We go from the water-front through the Lower Town, up the heights, and out to where the modern city eats into the countryside. The Lower Town is largely French. The main part of the Upper Town used to be enclosed by walls and stone gates, parts of which are still standing. The dull gray buildings are of stone, with only shelf-like sidewalks between them and the street. Most of the streets are narrow. The heights are ascended by stairs, by a winding street, and in one place by an elevator. The old French *caleche*, a two-wheeled vehicle between a jinrikisha and a dog-cart, has been largely displaced by motor-cars, which can climb the steep grades in a jiffy. Even the ancient buildings are giving way to modern necessities, and every year some are torn down.

As a city, Quebec is unique on this continent. It fairly drips with "atmosphere," and is concentrated romance and history. You know the story, of course, of how Champlain founded it in 1608, on a narrow shelf of land under the rocky bluff that rises nearly three hundred and fifty feet above the St. Lawrence. Here brave French noblemen and priests started what they hoped would be a new empire for France. Between explorations, fights

with the Indians, and frequent British attacks, they lived an exciting life. Finally, General Wolfe in 1759 succeeded in capturing for the British this Gibraltar of the New World. Landing his men by night, at dawn he was in position on the Plains of Abraham behind the fort. In the fight that followed Wolfe was killed, Montcalm, the French commander, was mortally wounded, and the city passed into the hands of the English. If General Montgomery and Benedict Arnold had succeeded in their attack on Quebec on New Year's Eve, sixteen years later, the history of all Canada would have been different, and the United States flag might be flying over the city to-day.

The British built in the rock on top of the bluff a great fort and citadel covering about forty acres. It still bristles with cannon, but most of them are harmless compared with modern big guns. The works serve chiefly as a show place for visitors, and a summer residence for dukes and lords sent out to be governors-general of Canada. The fortification is like a mediæval castle, with subterranean chambers and passages, and cannon balls heaped around the battlements. Below the old gun embrasures is a broad terrace, a quarter of a mile long. This furnishes the people of Quebec a beautiful promenade that overlooks the harbour and commands a fine view of Levis and the numerous villages on the other shore.

The Parliament building stands a little beyond the entrance to the citadel. As we go on the architecture reflects the transition from French to British domination. The houses begin to move back from the sidewalk, and to take on front porches. I saw workmen putting in double windows, in preparation for winter, and noticed that the sides of many of the brick houses are clapboarded to keep

the frost out of the mortar. Still farther out apartments appear, while a little beyond are all the marks of a suburban real estate boom. Most of the "for sale" signs are in both French and English.

Now come with me and look at another Quebec, of which you probably have never heard. The city is built, as you know, where the St. Charles River flows into the St. Lawrence. The valley of the St. Charles has become a great hive of industry, and contains the homes of thousands of French workers. Looking down upon it from the ancient Martello Tower on the heights of the Upper Town, we see a wilderness of factory walls, church spires, and the roofs of homes. Beyond them great fields slope upward, finally losing themselves in the wooded foothills of the Laurentian Mountains. Cotton goods, boots and shoes, tobacco, and clothing are manufactured here. It was from this valley that workers for the textile and shoe industries of New England were recruited by thousands. A few miles upstream is the village of Indian Lorette, where descendants of a Huron tribe, Christianized by the French centuries ago, make leather moccasins for lumberjacks and slippers for American souvenir buyers. A big fur company also has a fox farm near Indian Lorette.

Quebec was once the chief port of Canada, but when the river was dredged up to Montreal it fell far behind. All but the largest transatlantic liners can now sail for Europe from Montreal, though they make Quebec a port of call. Quebec is five hundred miles nearer Liverpool than is New York, and passengers using this route have two days less in the open sea. The navigation season is about eight months. The port has rail connections with all Canada and the United States. Above the city is the

world's longest cantilever bridge, on which trains cross the river. After two failures the great central span, six hundred and forty feet long, was raised from floating barges and put into place one hundred and fifty feet above the water.

In the English atmosphere of the Maritime Provinces I felt quite at home, but here I seem to be in a foreign land, and time has been pushed back a century or so. We think of Canada as British, and assume that English is the national language. But in Quebec, its largest province, containing about one fifth of the total area, nearly nine tenths of the people are French and speak the French language. They number almost one fourth of the population of the Dominion.

Quebec is larger than Texas, New Mexico, Arizona, and California combined; it is nearly as big as all our states east of the Mississippi River put together. Covering an area of seven hundred thousand square miles, it reaches from the northern borders of New York and New England to the Arctic Ocean; from the Gulf of St. Lawrence and Labrador westward to Hudson Bay and the Ottawa River. Most Americans see that part of Quebec along the St. Lawrence between the capital and Montreal, but only one fourteenth of the total area of the province lies south of the river. The St. Lawrence is more than nineteen hundred miles long, and Quebec extends along its north bank for almost the entire distance.

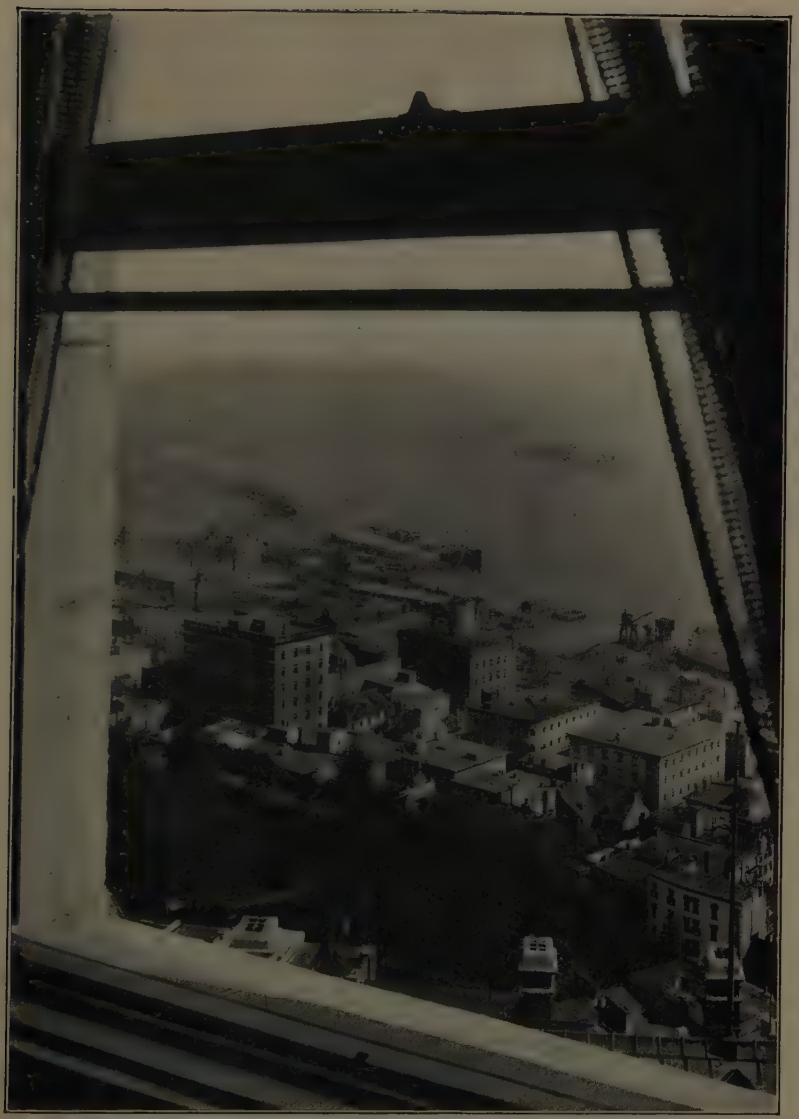
Jacques Cartier sailed up the St. Lawrence in 1535 and claimed possession of the new land in the name of "Christ and France." Later, French soldiers and priests pushed their way up the river, explored the Great Lakes, and went down the Mississippi. It was French fur traders, fishermen, and farmers who opened up and

populated eastern Canada. With no immigration from France since British rule began, the population of the province of Quebec has had a natural increase from about sixty thousand to more than two millions. The average family numbers from six to eight persons, while families of twelve and fourteen children are common. Quebec maintains the highest birth rate of any province in Canada. It has also the highest death rate, but there is a large net gain every year.

Quebec is one of the chief reservoirs of Canada's natural wealth. It leads all other provinces in its production of pulpwood, and contributes more than one half the Dominion's output of pulp and paper. It is second only to British Columbia and Ontario in lumber production, while its northern reaches contain the last storehouse of natural furs left on our continent.

Canada is one of the world's great sources of water-power. Nearly half of that already developed is in the province of Quebec, and her falling waters are now yielding more than a million horse-power. Tens of thousands of additional units are being put to work every year, while some five million horse-power are in reserve. It would take eight million tons of coal a year to supply as much power as Quebec now gets from water.

At Three Rivers, about halfway between Montreal and Quebec, the St. Maurice River empties into the St. Lawrence. Twenty miles upstream are the Shawinigan Falls, the chief source of power of the Shawinigan Company, which, with its subsidiaries, is now producing in this district more than five hundred thousand horse-power. This is nearly half the total power development in the province. Around the power plant there have grown up



The ancient citadel on the heights of Quebec is now dwarfed by a giant castle-like hotel that helps make the American Gibraltar a tourist resort. Its windows command a magnificent view of the St. Lawrence.

The St. Louis gate commemorates the days when Quebec was a walled city and always well garrisoned with troops. Just beyond is the building of the provincial parliament, where most of the speeches are in French.

electro-chemical industries that support a town of twelve thousand people, while at Three Rivers more paper is made than anywhere else in the world. Shawinigan power runs the lighting plants and factories of Montreal and Quebec, and also serves most of the towns south of the St. Lawrence. The current is carried over the river in a thick cable, nearly a mile long, suspended on high towers.

In the Thetford district of southern Quebec, power from Shawinigan operates the machinery of the asbestos mines. Fifty years ago, when these deposits were discovered, there was almost no market for asbestos at ten dollars a ton. Nowadays, with its use in theatre curtains, automobile brake linings, and coatings for furnaces and steam pipes, the best grades bring two thousand dollars a ton, and two hundred thousand tons are produced in a year. Quebec now furnishes eighty-eight per cent. of the world's annual supply of this mineral.

The Quebec government controls all power sites, and leases them to private interests for ninety-nine year terms. The province has spent large sums in conserving its water-power resources. At the headquarters of the St. Maurice River, it built the Gouin reservoir, which floods an area of more than three hundred square miles, and stores more water than the great Aswan Dam on the Nile.

Quebec is the third province in value of agricultural production. What I have seen of its farms convinces me that the French Canadian on the land is a conspicuous success. For a half day I rode along the south shore of the St. Lawrence River through a country like one great farm. Nearly every foot of it is occupied by French farmers. Most of the time we were on high ground, overlooking the river, which, where we first saw it, was forty

miles wide. It grew constantly narrower, until, where we crossed it on a ferry to Quebec, its width was less than a mile. All the way we had splendid views of the Laurentian Mountains, looming up on the north shore of the river. Geologists say the Laurentians are the oldest rock formation on our continent. They are not high, the peaks averaging about sixteen hundred feet elevation, but they are one of the great fish and game preserves of the world and are sprinkled with hunting and fishing clubs.

In accordance with French law the Quebec farms have been divided and sub-divided among so many succeeding generations that the land is cut into narrow ribbons. Contrary to the custom in France, however, every field is fenced in with rails. I am sure that the fences I saw, if joined together, would easily reach from Quebec to Washington and back. They did not zig-zag across the fields like ours, thereby wasting both rails and land, but extended in a straight line, up hill and down, sometimes for as much as a mile or more.

The standard French farm along the St. Lawrence used to be "three acres wide and thirty acres long," with a wood lot at the farther end, and the house in the middle. As the river was the chief highway of the country, it was essential that every farmer have water frontage. With each division one or more new houses would be built, and always in the middle of the strip. The result is that every farmer has a near neighbour on each side of him, and the farmhouses form an almost continuous settlement along the highway, much like the homes on a suburban street. Each wood lot usually includes several hundred maple trees, and the annual production of maple sugar and syrup in Quebec is worth several hundred thousand dol-

lars. The maple leaf is the national emblem of Canada.

The houses are large and well built. They have narrow porches, high above the ground, reached by steps from below. This construction enables the occupants to gain access to their living rooms in winter without so much snow shovelling as would otherwise be necessary. For the same reason, most of the barns are entered by inclines leading up to the second floor and some are connected with the houses by bridges. The older houses are of stone, coated with whitewashed cement. With their dormer windows and big, square chimneys they look comfortable.

I saw the signs of thrift everywhere. Firewood was piled up for the winter, and in many cases a few cords of pulpwood besides, sometimes in such a manner as to form fences for the vegetable gardens. This winter the pulpwood in these fences will be sold. The chief crops raised are hay, oats, beans, and peas. The latter, in the form of soup, is served almost daily in the Quebec farmer's home.

In the villages all the signs are in French, and in one where I stopped for a time, I had difficulty in making myself understood. The British Canadian resents the fact that the French do not try to learn English. On the other hand the French rather resent the English neglect of French, which they consider the proper language of the country. Proceedings in the provincial parliament are in both tongues. French business men and the professional and office-holding classes can speak English, but the mass of the people know but the one language and are not encouraged to learn any other.

When the British conceded to Quebec the right to retain

the French language, the French law, and the Catholic Church, they made it possible for the French to remain almost a separate people. The French Canadians ask only that they be permitted to control their own affairs in their own way, and to preserve their institutions of family, church, and school. They cultivate the land and perform most of the labour; they own all the small shops, while most of the big business is in the hands of British Canadians. Any slight, real or fancied, to the French language or institutions, is quickly resented. The other day a French society and the Mayor of Quebec made a formal protest to a hotel manager because he displayed a sign printed only in English. American moving picture distributors must supply their films with titles in French. Menu cards, traffic directions, and, in fact, almost all notices of a public character, are always given in both languages. Only two of the five daily newspapers are printed in English; the others are French.

Quebec is now capitalizing her assets in the way of scenery and historic association, and is calculating how much money a motor tourist from the States is worth each day of his visit. The city of Quebec hopes to become the St. Moritz of America and the centre for winter sports. The Canadian Pacific Railroad has here the first of its chain of hotels that extends across Canada. It is built in the design of a French castle, and is so big that it dwarfs the Citadel. The hotel provides every facility for winter sports, including skating and curling rinks, toboggan slides, and ski jumps. It has expert ski jumpers from Norway to initiate visitors into this sport, and dog teams from Alaska to pull them on sleds. Quebec has snow on the ground throughout the winter season, and the ther-

In the old Lower Town are all sorts of narrow streets that may end in the rock cliff, a flight of stairs, or an elevator. Many of them are paved with planks.

Miles of rail fences divide the French farms into ribbon-like strips of land that extend from the St. Lawrence far back to the wooded hills. This is the result of repeated partition of the original holdings.

mometer sometimes drops to twenty-five degrees below zero, but the people say the air is so dry that they do not feel this severe cold. Which reminds me of Kipling's verse:

There was a small boy of Quebec
Who was buried in snow to his neck.
When they asked: "Are you friz?"
He replied: "Yes I is——
But we don't call this cold in Quebec."

CHAPTER VIII

STE. ANNE DE BEAUPRÉ AND ITS MIRACULOUS CURES

I HAVE just returned from a visit to the Shrine of the Good Sainte Anne, where three hundred thousand pilgrims worshipped this year. I have looked upon the holy relics and the crutches left behind by the cured and my knees are sore from climbing up the sacred stairway.

The Shrine of Ste. Anne de Beaupré, some twenty miles down the river from Quebec, is the most famous place of the kind on our continent. Quebec is the capital of French Catholicism, and Beaupré is its Mount Vernon, where good Catholics pay homage to the grandmother of their church. The other day a family of five arrived at Ste. Anne; they came from Mexico and had walked, they said, all the way. Last summer two priests came here on foot from Boston, and I talked this morning with a man who organizes weekly pilgrimages from New England. Thousands come from the United States and Canada, Alaska and Newfoundland. I saw to-day a couple just arrived in a Pennsylvania motor truck.

On Ste. Anne's day, July 26th, the number of pilgrims is often twenty thousand and more. Special electric trains and motor busses carry the worshippers from Quebec to Ste. Anne. For the accommodation of overnight visitors, the one street of the village is lined with little hotels and lodging houses that remind me of our summer

resorts. For a week before Ste. Anne's day, every house is packed, and sometimes the church is filled with pilgrims sitting up all night. Frequently parties of several hundred persons leave Quebec on foot at midnight, and walk to Ste. Anne, where they attend mass before eating breakfast.

The story of Ste. Anne de Beaupré goes back nearly two thousand years. The saint was the mother of the Virgin Mary, and therefore the grandmother of Christ. We are told that her body was brought from Bethlehem to Jerusalem, and then to Apt, in France, which thereupon became a great shrine. In a time of persecution her bones disappeared, but they were later recovered in a miraculous manner. According to tradition they were revealed to Charlemagne by a youth born deaf, dumb, and blind. He indicated by signs an altar beneath which a secret crypt was found. In the crypt a lamp was burning and behind it was a wooden chest containing the remains of the saint. The young man straightway was able to see, hear, and speak, and the re-discovered shrine became a great source of healing. This was exactly seven hundred years before Columbus discovered America.

The first church of Ste. Anne was erected at Beaupré in 1658. Tradition says it was built by sailors threatened with shipwreck, who promised Ste. Anne a new church at whatever spot she would bring them safely to land. Soon after the shrine was established bishops and priests reported wonderful cures, and since then, as the fame of the miracles spread, the shrine has become a great place of worship. Churches, chapels, and monasteries have been built and rebuilt, and countless gifts have been showered upon them. The first relic of Ste. Anne brought here was

a fragment of one of her finger bones. In 1892, Pope Leo XIII gave the "Great Relic," consisting of a piece of bone from the saint's wrist. This is now the chief object of veneration by pilgrims.

On March 29, 1922, the shrine suffered a loss by fire. The great church, or basilica, was completely destroyed, but the sacred relics and most of the other articles of value were saved. The gilded wooden statue of Ste. Anne, high up on the roof over the door, was only slightly scorched by the blaze. It now stands in the gardens awaiting the completion of the new church. The new building has been planned on such a large scale that five years have been allowed for its construction. Meanwhile, the pilgrims worship in a temporary wooden structure.

The numerous buildings that now form part of the shrine of Ste. Anne are on both sides of the village street, which is also the chief highway along the north bank of the St. Lawrence. On one side the fenced fields of the narrow French farms slope down to the river. On the other, hills rise up so steeply that they seem almost cliffs. The church and the monastery and the school of the Redemptorist Fathers, the order now in charge of the shrine, are on the river side. Across the roadway are the Memorial Chapel, the stations marking "The Way of the Cross," the sacred stairway, and, farther up the hillside, the convent of the Franciscan Sisters.

One of the Redemptorists, the Director of Pilgrimages, told me much that was interesting about Ste. Anne and her shrine. He gave me also a copy of the Order's advice on "how to make a good pilgrimage." This booklet urges the pilgrim to hear Holy Mass as soon as possible. It says that "the greatest number of miraculous cures or

In the province of Quebec nine tenths of the people are French-speaking Catholics. Every village supports a large church, every house contains a picture of the Virgin Mary, and every road has its wayside shrine.

In the heart of the business and financial districts of Montreal is the Place d'Armes, once the site of a stockade and the scene of Indian fights. There stands the church of Notre Dame, one of the largest in all America.

favours are obtained at the Shrine after a fervent Communion."

"After Holy Communion," the Order's advices continue, "the act most agreeable to Sainte Anne and the one most calculated to gain her favours, is the veneration of her relic."

The act of veneration is performed by pilgrims kneeling before the shrine containing the piece of Ste. Anne's wrist bone. It is then that most of the cures are proclaimed. The people kneel in prayer as close to the shrine as the number of worshippers will permit. Those who experience a cure spring up in great joy and cast at the feet of the saint's statue their crutches or other evidence of their former affliction. In the church I saw perhaps fifty crutches, canes, and sticks left there this summer by grateful pilgrims. At the back of the church I saw cases filled with spectacles, leg braces, and body harnesses, and even a couple of wheel chairs, all abandoned by pilgrims. One rack was filled with tobacco pipes, evidence of promises to give up smoking in return for the saint's favours.

The miraculous statue of Ste. Anne, before which the pilgrims kneel, represents the saint holding in her arms the infant Christ. On her head is a diadem of gold and precious stones, the gifts of the devout. Below the statue is a slot marked "petitions." Pilgrims having special favours to ask of Ste. Anne write them on slips of paper and drop them into the box. After three or four months, they are taken out and burned. On the day of my visit the holy relic was not in its usual place in the church, but in the chapel of the monastery, a fireproof building, where it had been moved for safekeeping. It was there that I gazed upon the bit of bone. The relic is encased in a box of

solid gold and is encircled by a broad gold band, about the size of a napkin ring, set with twenty-eight diamonds. The box is studded with gems and inlaid with richly coloured enamels. All the precious stones came from jewellery given by pilgrims.

I visited also the "Grotto of the Passion." This contains three groups of figures, representing events in the life of Christ. In front of the central group is a large, shallow pan, partly filled with water and dotted with the stumps of candles lighted and set there by pilgrims to burn until extinguished by the water. The Grotto is in the lower part of a wooden structure that looks like a church, built on the side of the hill. Above is the "Scala Sancta," or sacred stairway. Large signs warn visitors that these stairs, which represent those in Pilate's house, are to be ascended only on the knees. There are twenty-eight steps, and those who go up are supposed to pause on each one and repeat a prayer. As I reverently mounted the steps, one by one, I was reminded of the Scala Sancta in Rome, which I climbed in the same way some years ago. It is a flight of twenty-eight marble steps from the palace of Pilate at Jerusalem, up which our Saviour is said to have climbed. It was brought to Rome toward the end of the period of the crusades, and may be ascended only on the knees.

The stairway at Beaupré is often the scene of miraculous cures, but none occurred while I was there. At the top the pilgrims kneel again and make their devotions, ending with the words, "Good Sainte Anne, pray for us."

Near the church are stores that sell souvenirs, bead crosses, and the like, the proceeds from which go toward the upkeep of the shrine. At certain hours each day articles

thus purchased, or those the pilgrims have brought from home, are blessed by the priests in attendance. Another source of revenue is the sale of the shrine magazine, which has a circulation of about eighty thousand. Subscribers whether "living or dead, share in one daily mass" said at the shrine. Pilgrims are also invited to join the Association of the Perpetual Mass, whose members, for the sum of fifty cents a year, may share in a mass "said every day for all time."

The Director of Pilgrimages told me that the past summer had been the best season in the history of the shrine. The pilgrims this year numbered more than three hundred thousand, their contributions were generous, and the number of cures, or "favours," large. About one third of these, said the Director, prove to be permanent. The Fathers take the name and address of each pilgrim who claims to have experienced a miraculous cure, and inquiries are made later to find out if relief has been lasting. The shrine has quantities of letters and photographs as evidences of health and strength being restored here, and I have from eye-witnesses first-hand accounts of the joyous transports of the lame, the halt, and the blind when their ailments vanish, apparently, in the twinkling of an eye.

I have referred to Quebec as the American capital of French Catholicism. It is not only a city of many churches, but is also headquarters for numerous Catholic orders, some of which established themselves here after being driven from France. The value of their property holdings now amounts to a large sum, and one of the new real-estate sub-divisions is being developed by a clerical order. Many of the fine old mansion homes, with park-

like grounds, once owned by British Canadians, are now in the hands of religious organizations. The Ursuline nuns used to own the Plains of Abraham, and were about to sell the tract for building lots when public sentiment compelled the government to purchase it and convert it into a park. A statue of General Wolfe marks the spot where he died on the battlefield. It is the third one erected there, the first two having been ruined by souvenir fiends.

The homes of the Catholic orders in Quebec supply priests for the new parishes constantly being formed in Canada. They also send their missionaries to all parts of the world, and from one of the nunneries volunteers go to the leper colonies in Madagascar. Other orders maintain hospitals, orphanages, and institutions identified with the city's historic past. Before an altar in one of the churches two nuns, dressed in bridal white, are always praying, night and day, each couple being relieved every half hour. In another a lamp burning before a statue of the Virgin has not been extinguished since it was first lighted, fifteen years before George Washington was born. Some of the churches contain art treasures of great value, besides articles rich in their historical associations.

Driving in the outskirts of Quebec I met a party of Franciscan monks returning from their afternoon walk. They were bespectacled, studious-looking young men, clad in robes of a gingerbread brown, fastened with white girdles, and wearing sandals on their bare feet. All were tonsured, but I noticed that their shaved crowns were in many instances in need of a fresh cutting. These men alternate studies with manual labour in the fields. In front of the church of this order is a great wooden cross bearing

the figure of Christ. Before it is a stone where the devout kneel and embrace His wounded feet. Near by is also a statue of St. Ignatius, founder of the Jesuit Order, standing with one foot on the neck of a man who represents the heretics.

There are in Quebec a few thousand Irish Catholics, descendants of people who came here to escape the famine in Ireland. They have built a church of their own. Another church, shown to visitors as a curiosity, is that of the French Protestants, who, according to the latest figures, number exactly one hundred and thirty-five.

Though a city of well over one hundred thousand people, Quebec has an enviable record for peace and order and for comparatively few crimes. The credit for this is generally given to the influence of the Church, which is also responsible, so I am told, for the success of the French Canadian in "minding his own business." The loyalty of the people to their faith is evidenced by the fact that even the smallest village has a big church. Outside the cities the priest, or curé, is in fact the shepherd of his flock, and their consultant on all sorts of matters. I am told, however, that the clergy do not exercise the same control over political and worldly affairs as was formerly the case, and not nearly so much as is generally supposed. It is still true, however, that the Catholic religion is second only to the French language in keeping the French Canadians almost a separate people.

CHAPTER IX

MONTREAL

FOLLOWING the course of the French explorers, I have come up the St. Lawrence to the head of navigation, and am now in Montreal, the largest city of Canada and the second port of North America. It is an outlet for much of the grain of both the United States and Canada, and it handles one third of all the foreign trade of the Dominion. Montreal is the financial centre of the country and the headquarters for many of its largest business enterprises. In a commercial sense, it is indeed the New York of Canada, although totally unlike our metropolis.

In order to account for the importance of Montreal, it is necessary only to glance at the map. Look first at the Gulf of St. Lawrence and the broad mouth of the river! See how they form a great funnel inviting the world to pour in its people and goods. Follow the St. Lawrence down to Quebec and on by Montreal to the Great Lakes, which extend westward to the very heart of the continent. There is no such waterway on the face of the globe and none that carries such a vast commerce into the midst of a great industrial empire.

Montreal is the greatest inland port in the world. It ships more grain than any other city. It is only four hundred and twenty miles north of New York, yet it is three hundred miles nearer Liverpool. One third of the

distance to that British port lies between here and the Straits of Belle Isle, where the Canadian liners first meet the waves of the open sea. The city is the terminus of the canal from the Great Lakes to the St. Lawrence and of Canada's three transcontinental railways. Vessels from all over the world come here to get cargoes assembled from one of the most productive regions on the globe. Although frozen in for five months every winter, Montreal annually handles nearly four million tons of shipping, most of which is under the British flag. It has a foreign trade of more than five hundred million dollars. The annual grain movement sometimes exceeds one hundred and sixty bushels for each of the city's population of almost a million.

In the modern sense, the port is not yet one hundred years old, though Cartier was here nearly four centuries ago, and Champlain came only seventy years later. Both were prevented from going farther upstream by the Lachine Rapids, just above the present city. Cartier was seeking the northwest passage to the East Indies, and he gave the rapids the name La Chine because he thought that beyond them lay China.

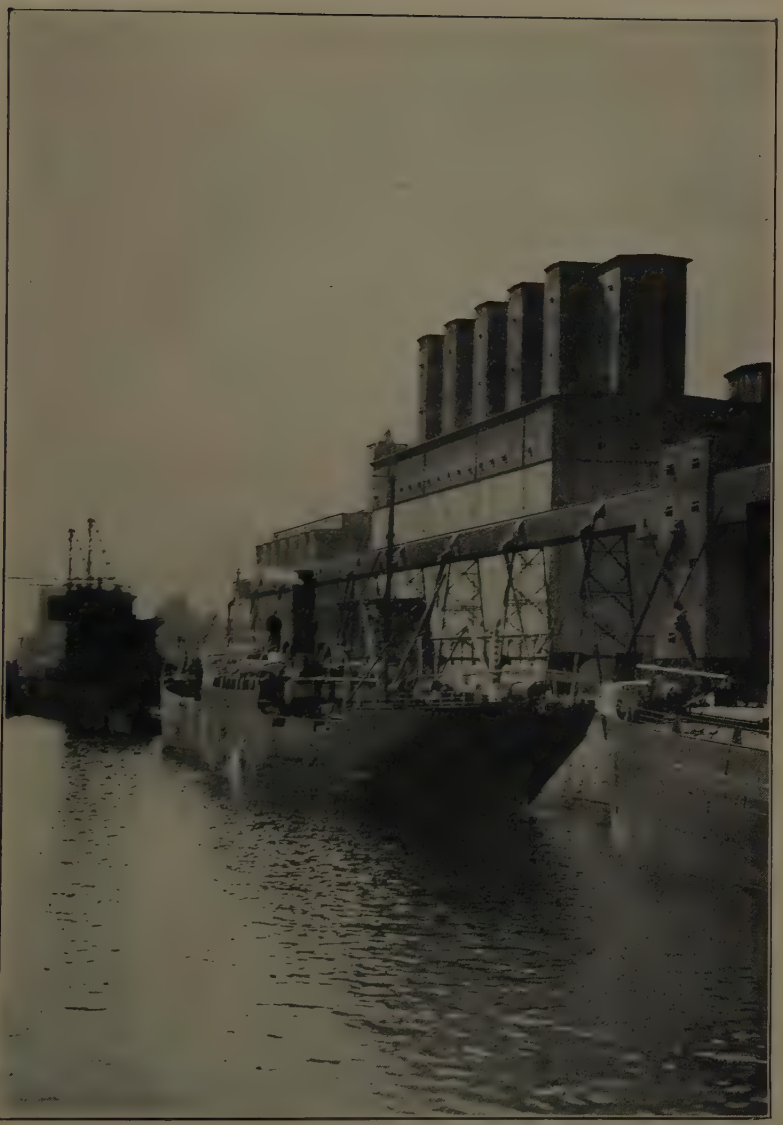
At the foot of the rapids the Frenchmen found an island, thirty miles long and from seven to ten miles wide, separated from the mainland by the two mouths of the Ottawa River. It was then occupied by a fortified Indian settlement. The presence of the Indians seemed to make the island an appropriate site on which to lay the foundations of the new Catholic "Kingdom of God," and the great hill in the background, seven hundred and forty feet high, suggested the name, Mont Real, or Mount Royal.

Although the Indians seemed to prefer fighting the

newcomers to gaining salvation, the religious motive was long kept alive, and it was not until early in the last century that the city began to assume great commercial importance. During the first days of our Revolution, General Montgomery occupied Montreal for a time, and Benjamin Franklin begged its citizens to join our rebellion. It had then about four thousand inhabitants. Even as late as 1830 Montreal was a walled town, with only a beach in the way of shipping accommodations. The other day it was described by an expert from New York as the most efficiently organized port in the world.

I have gone down to the harbour and been lifted up to the tops of grain elevators half as high as the Washington Monument. I have also been a guest of the Harbour Commission in a tour of the water-front. The Commission is an all-powerful body in the development and control of the port. Its members, who are appointed by the Dominion government, have spent nearly forty million dollars in improvements. This sum amounts to almost five dollars a head for everyone in Canada, but the port has always earned the interest on its bonds, and has never been a burden to the taxpayers.

An American, Peter Fleming, who built the locks on the Erie Canal, drew the first plans for the harbour development of Montreal. That was about a century ago. Now the city has its own expert port engineers, and last summer one of the firms here built in ninety days a grain elevator addition with a capacity of twelve hundred and fifty thousand bushels. A giant new elevator, larger than any in existence, is now being erected. It will have a total capacity of fourteen million bushels of grain.



Montreal's future, like her present greatness, lies along her water front. Here the giant elevators load the grain crop of half a continent into vessels that sail the seven seas.

On a clear day one may stand on Mt. Royal, overlooking Montreal and the St. Lawrence, and see in the distance the Green Mountains of Vermont and the Adirondacks of New York.

The port handles at times as much as twenty-three hundred thousand bushels of wheat in a day. It is not uncommon for a lake vessel to arrive early in the morning, discharge its cargo, and start back to the head of the lakes before noon. Rivers of wheat are sucked out of the barges, steamers, and freight cars, and flow at high speed into the storage bins. There are sixty miles of water-front railways, most of which have been electrified. Every operation possible is performed by machinery, and there are never more than a few workmen anywhere in sight. Yet the grain business is a source of great revenue to the city, and furnishes a living to thousands of people. One of the industries it has built up is that of making grain sacks, of which one firm here turns out two and one half millions a year.

But let me tell you something of the city itself—or, better still, suppose we go up to the top of Mount Royal and look down upon it as it lies under our eyes. We shall start from my hotel, a new eight-million-dollar structure erected chiefly to accommodate American visitors, and take a coach. As a concession to hack drivers, taxis are not allowed on top of Mount Royal.

Our way lies through the grounds of McGill University, and past one of the reservoirs built in the hillside to supply the city with water pumped from the river. McGill is the principal Protestant educational institution in the province of Quebec. Here Stephen Leacock teaches political economy when he is not lecturing or writing his popular humorous essays. Besides colleges of art, law, medicine, and applied science, McGill has a school of practical agriculture, It also teaches young women how to cook. It has branches at Victoria and Vancouver in

British Columbia. The medical school is rated especially high, and many of its graduates are practicing physicians in the United States.

Now we are on the winding drive leading to the top of the hill. Steep flights of wooden stairs furnish a shorter way up for those equal to a stiff climb, and we pass several parties of horseback riders. All this area is a public park, and a favourite spot with the people of the city. See those three women dressed in smart sport suits, carrying slender walking sticks. They seem very English. Over there are two girls, in knickers and blouses, gaily conversing with their young men. They have dark eyes and dark hair, with a brunette glow on their cheeks that marks them as French.

Step to the railing on the edge of the summit. If the day were clear we could see the Adirondacks and the Green Mountains of Vermont. Like a broad ribbon of silver the St. Lawrence flows at our feet. That island over there is called St. Helene, bought by Champlain as a present for his wife. Since he paid for it out of her dowry, he could hardly do less than give it her name.

That narrow thread to the right, parallel with the river, is the Lachine Canal, in which a steamer is beginning its climb to the level of Lake St. Louis. The canal has a depth of fourteen feet, and accommodates ships up to twenty-five hundred tons. The shores of the lake, which is really only a widening out of the river, furnish pleasant sites for summer bungalows and cool drives on hot nights. Nearer the city the canal banks are lined with warehouses and factories. Montreal's manufactures amount to more than five hundred million dollars a year.

There below us is Victoria Jubilee Bridge, one and

three quarters miles long. Over it trains and motors from the United States come into the city. Another railroad penetrates the heart of Montreal by a tunnel under Mount Royal that has twin tubes more than three miles in length. The Canadian Pacific Railroad has bridged the St. Lawrence at Lachine.

Most of Montreal lies between Mount Royal and the river, but the wings of the city reach around on each side of the hill. The French live in the eastern section. The western suburbs contain the homes of well-to-do English Canadians. One of them, Westmount, is actually surrounded by the city, yet it insists on remaining a separate municipality.

Mark Twain said that he would not dare throw a stone in Montreal for fear of smashing a church window. If he could view the city to-day he would be even more timid. Almost every building that rises above the skyline is a church, and the largest structures are generally Catholic schools, colleges, hospitals, or orphanages.

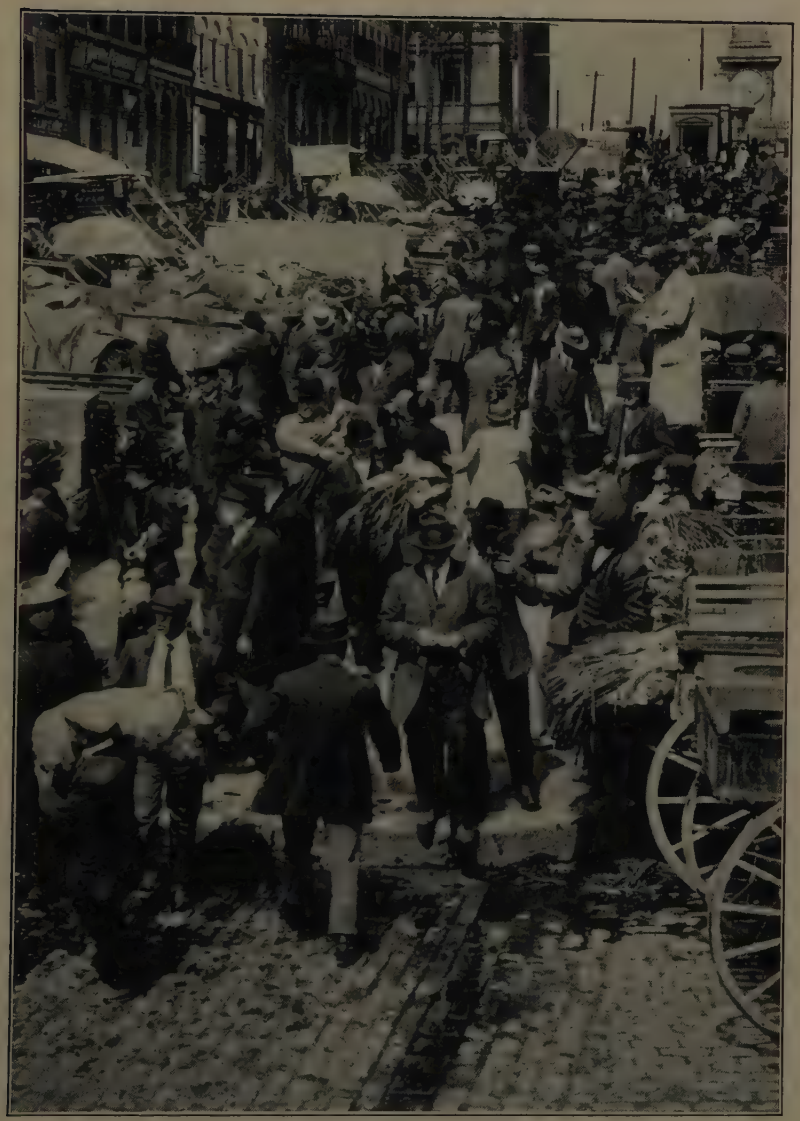
In the heart of Montreal's Wall Street is the huge Church of Notre Dame. It seats twelve thousand people, and in its tower is the largest bell in America, weighing about twenty-nine thousand pounds. That dome farther over marks the location of the Cathedral of St. James. It is a replica, on a reduced scale, of St. Peter's at Rome. It seats several thousand worshippers; nevertheless, when I went there last Sunday morning hundreds were standing, and within fifteen minutes after one service was concluded it was again filled to capacity for the next.

Downtown Montreal is built largely of limestone. It has a massive look, but skyscrapers are barred by a city ordinance. Erection of modern steel and concrete office

buildings is now under way, and they stand out conspicuously against the background of more old-fashioned structures. Big as it is and important commercially, Montreal seems a city without any Main Street. St. Catherine Street has the largest retail stores and the "bright lights" of theatres and cafés, but I have seen more impressive thoroughfares in much smaller places at home. This is essentially a French city, though less so than Quebec. The French do not naturally incline toward "big business." They seem content with small shops, which since the days of their grandfathers have grown in numbers rather than in size. They are by nature conservative, and though they make shrewd business managers, they care little for innovations in either public or private affairs.

I have visited the biggest market, the Bonsecours. It is quite as French as those I have seen in southern France. This market takes up a wide street running from the heart of Montreal down to the wharves. The street is the overflow of the market proper, which fills a church-like building covering an acre of ground. When I arrived the open space was crowded with French farmers, who in the early morning had driven their cars and light motor trucks loaded down with fruits and vegetables into the city. Fully half of the wagons were in charge of women, who looked much like those in the Halles Central in Paris. As I pressed my way through the throng many of them called out to me in French and some thrust their wares into my face and urged me to buy.

The mayor of Montreal is always a French Canadian, and he is usually reëlected for several terms. I talked with His Honour and found him a most pleasant gentleman. Discussing his city, he said:



In the French market one feels he is indeed in a foreign land, and among a people of alien tongue. When he buys, however, he discovers that the farmers understand perfectly when money does the talking.

Kipling did not endear himself to Montreal when he called Canada "Our Lady of the Snows," yet the people are really proud of their facilities for winter sports, which include a toboggan slide down Mt. Royal.

"Montreal is thriving as never before. Our population is rapidly increasing and we expect soon to have more than a million. We have taken in some of the suburbs, as your great cities have done, and our increasing opportunities are constantly attracting new people.

"I believe we are one of the most cosmopolitan communities on the continent," continued the Mayor. "About seventy per cent. of us are French, and a large part of the balance are English Canadians. We have also Americans, Germans, Belgians, Italians, and Chinese, besides large numbers of Irish and Scotch, and some of the peoples of southeastern Europe. We are the Atlantic gate to Canada, so that a large portion of our immigrants pass through here on their way west. Many of them go no farther, as they find employment in our varied industries.

"It costs us more than twenty million dollars a year to run Montreal, but we feel that we can afford it. The value of our taxable buildings amounts to nearly seven hundred and fifty millions, and is increasing at the rate of fifteen millions a year. We have more than one million acres of public parks, or in excess of an acre for every man, woman, and child in the city."

Montreal is one of the great sport centres of Canada. In the warm months, the people play golf, baseball, football, and lacrosse. The latter is a most exciting game, borrowed from the Indians, with more thrills and rough play than our college football. It is a cross between hockey and basketball. A light ball is tossed from player to player by means of a little net on the end of a long curved stick, the object of each side being to get the ball into the opponents' goal. In the game I saw, the players were often hit on the head and shoulders, and before the

afternoon was over there had been a good deal of bloodshed from minor injuries. I was told, however, that this match was exceptionally rough.

In the winter, hockey is the great game of Canada. Every large city has its hockey rink, and, where there are many Scotch, curling rinks as well. In curling, great round soapstones are slid across a designated space on the ice toward the opponents, who stand guard with brooms. By sweeping the ice in front of the approaching stone, they try to veer it out of the course intended by the player who started it toward their goal.

As far as the masses of the people are concerned, skiing, snowshoeing, and coasting are the chief winter sports, and in them nearly everybody takes part. In Montreal, toboggan slides are built on the sides of Mount Royal, and its slopes are covered with young men and women on snowshoes and skis.

Montreal used to build an ice palace every winter. Then the business men feared the city was acquiring an antarctic reputation that would discourage visitors. Consequently, organized exploitation of winter sports fell off for a time, but this fall a fund of thirty thousand dollars is being subscribed to finance them on a large scale.

CHAPTER X

CANADA'S BIG BANKS

THERE are more than eight thousand national banks in the United States, but Canada has only sixteen. While new ones are organized in our country every month, the number in Canada tends constantly to grow less, and to-day is not half what it was twenty years ago. The banking system of the Dominion is patterned somewhat after the Scotch, and was worked out largely by men of that shrewd, hard-headed race. The people think it suits their conditions better than any other. Certainly it is true that while Canada has had its ups and downs, the people have suffered far less than we from bank failures and panics.

One might think that with all the banking business of Canada monopolized by only sixteen institutions, they might make fabulous profits. However, such is not the case. I have before me the current monthly statement which the government publishes regarding the condition and operation of each bank. This shows that all are making money, but their dividends range from six to sixteen per cent., and the Bank of Nova Scotia is the only one that paid the highest rate. Nine of the banks paid twelve per cent. on their capital stock last year, while the shareholders of five got less than ten per cent.

In the United States a handful of business men can start a bank on a few thousand dollars. Here it is not

so easy a matter. Canadian law requires a minimum capital of five hundred thousand dollars, half of which must be paid in, before a bank can be chartered, and there are other conditions to be met that make the establishment of a new bank a big undertaking. The smallest bank in Canada, at Weyburn, Saskatchewan, is the only one with a capital of less than one million dollars, while the largest, the Bank of Montreal, has paid-up stock amounting to twenty-seven and one quarter millions. The total combined capital of all the banks is one hundred and twenty-three millions.

The great banks extend their service throughout the Dominion by means of branches. These now number nearly five thousand, and new ones are being constantly added. The branch plan is the most striking difference between Canada's banking system and ours, which prohibits the establishment of branches except within a bank's home city, and, under certain regulations, in foreign countries. The larger Canadian banks are represented by their own branches in every city, from coast to coast, while the Bank of Montreal alone has more than six hundred agencies. Nearly all the banks have their head offices in Eastern Canada. Six of them are located in the province of Quebec, seven in Ontario, and one each in Nova Scotia, Manitoba, and Saskatchewan. Three of the banks in Quebec are controlled by the French Canadians. Their combined capital is just under nine million dollars, or not quite half that of the Royal Bank of Canada, the second largest in the Dominion.

An official of the Canadian Bankers' Association has explained to me some of the advantages of this system. He said:

When the discoverers sailed up the St. Lawrence to what is now Montreal they thought these rapids just above the city blocked their passage to China, and so named them "La Chine."

Montreal's rise as a great port began a century ago when the Lachine Canal was built around the rapids, and gave the city a water passage to the upper St. Lawrence and the Great Lakes.

Many homes have the Rideau Canal and its fringe of park at their front door. Built originally for military reasons, the canal now makes possible a boat trip through the Rideau Lakes to the St. Lawrence.

"Our plan of branch banks is based partly on the principle that there is more strength in a bundle of fagots joined together than there is in the same number of sticks taken separately. Poor management or bad times, under your system, may bring disaster to a single bank, whereas with us losses in any branch would be easily absorbed in a great volume of business covering the whole country, and the shock hardly felt at all. Under our system it is a simple matter for a bank to concentrate its funds in the districts where they are most needed, and money flows easily into the channels where there is the greatest demand. This is of the utmost importance to Canada, for we have limited capital, and therefore must keep it liquid at all times.

"Canada is still a young country, not yet done with pioneering, and its banks must lend a hand in promoting its development. When a branch bank is opened in a tent or shack in a new mining camp, the people know that the manager is there to give them service, and that he represents a strong institution with millions in assets. A remote fishing village or new paper-mill town is thus provided with banking facilities quite as effective as those of Montreal or Toronto. The difference in rates of interest charged is never more than two per cent., no matter how remote from the money centre a branch bank may be. The only reason it is ever higher is that where the operations of a branch bank are small, the overhead expenses are proportionately greater, and must be compensated for by the bank's customers. In recent years our wheat farmers of southern Saskatchewan have been getting money cheaper than have the farmers of your North Dakota, just over the border. The banks represented in

our three prairie provinces frequently have more money on loan in that territory than the sum total of the deposits in all their branches in the same area."

The banks of Canada all obtain their charters from the Dominion government, and their operations are strictly defined by law. This law, known as the Canadian Banking Act, dates from 1870, and it automatically comes up in Parliament for revision every ten years. Under the act, the banks are permitted to issue paper money, which ordinarily must not exceed the amount of their capital. Shareholders are made liable for the redemption of bank notes up to the amount of twice the value of the capital stock. In addition, each bank is required to keep on deposit with the government a sum equal to five per cent. of its note circulation. This goes into what is called the redemption fund, which was created to make it absolutely certain that in case of the failure of a bank, all its notes will be redeemed at face value. During the period from September to February, when the crops are moving to market, the banks may issue notes to fifteen per cent. in excess of their capital, but must pay a tax of five per cent. on all such extra circulation.

Canada's banks are not audited by government examiners, as with us, but each bank must submit a monthly statement of its condition to the Minister of Finance. These reports are more detailed than our bank statements and are regularly published by the government. They show, among other things, the amount each bank has loaned to members of its board of directors, or to firms in which they are partners. The banks are not allowed to lend money on real estate; this service is confined to loan and mortgage companies. Nearly all the chartered banks

of Canada conduct savings banks and many of them also operate trust companies. The activities of the latter are almost exclusively confined to acting as trustees and as administrators of estates.

In the relations between the banks and the government, the Canadian Bankers' Association plays an important part. It has a semi-official status, in that it was incorporated by special act of Parliament, and is recognized as the joint representative of all the chartered banks. It establishes clearing houses, supervises the issues of bank notes, and manages the central gold reserves. The chief executive officers of the Association are frequently consulted by the government on financial questions.

During my stay in Montreal I had an interview with Sir Frederick Williams-Taylor, president of the Association and general manager of the Bank of Montreal, the oldest and largest financial institution in Canada. In the Dominion, the chief executive of a bank is called the manager. While the president occupies an important position as chairman of the board of directors, he has not the same relation to the daily transaction of business as is usually the case with us. Canada's banks are likewise distinguished for the long service of the men in charge of their affairs. At the Bank of Montreal, for example, the president and manager have put in, between them, nearly one hundred years with the one institution. In all the banks, as a rule, the men in authority have risen from the ranks to their present positions.

The Bank of Montreal is one of the great banks of the world. It was founded more than one hundred years ago, about the time that James Monroe was beginning his first term as President of the United States. In those

days, there was still fresh in the minds of the Canadians knowledge of disastrous financial methods that had been common in both the American colonies and Canada. In the time of the French, for example, one of the governors, not receiving funds expected from home, cut playing cards into small pieces, and wrote thereon the government's promises to pay. These he distributed among his unpaid soldiers, and "card money," as it was called, continued to circulate for a great many years. Our own colony of Massachusetts, learning of this easy method of "making" money, produced a similar currency which later led to the phrase "not worth a continental." Even after banks were established in Canada, their notes had different values in various parts of the country.

The home of the Bank of Montreal in St. James Street faces the old Place d'Armes, a large square where formerly stood the stockade built for protection against the Indians. Now it is the centre of the financial district of Montreal, and, indeed, of all Canada. Of the total capital of Canada's banks, considerably more than half is held by institutions having their main offices in this city.

When I went to call upon Sir Frederick, I passed through a doorway supported by huge Corinthian pillars. Once inside, I found a banking room larger than any I have ever seen in the United States. Its great size, and the rows of counters and wicket windows reminded me somewhat of the New York railroad stations and their batteries of ticket offices. The roof, more than one hundred feet above the floor, is supported by columns of black granite from Vermont, each as big around as a flour barrel and as bright as polished jet. The building has not the shine and new look of some of our great banks,

but everything about it is stately, and the servants are as imposing as those of the Bank of England. A sleek, black-haired attendant, who looked like Jerry Cruncher, wearing a blue suit trimmed with red and a bright red vest with brass buttons, ushered me into Sir Frederick's office.

In speaking about Canadian banking, Sir Frederick said:

"By means of our branches in all parts of Canada we have our hand on the pulse of the whole country. Every one of the great banks receives constantly from its own representatives accurate information of the state of business in his locality. We do not have to depend upon friendly correspondents or outside agencies, but know promptly and at first hand just what is going on. In this way we can always anticipate the needs of a particular section, and act accordingly. We can see the signs of any trouble ahead, and adopt measures to prevent disaster. The managers of our branches are responsible directly to us, and are therefore not likely to be influenced so much by purely local considerations as might be the case under a different system. On the other hand, it is our practice to include in our board of directors men who reside in western and central Canada, and are therefore in close touch with conditions in those sections."

"With such sources of information," I said, "you should be in a position to judge of the condition of Canada as a whole. I wish you would tell me, Sir Frederick, just how you see her situation?"

"Canada is suffering from three great disadvantages," he replied. "I don't wish to emphasize our troubles, but there is no country without them, and we have our share, just as does the United States. Our handicaps are the high cost of living, high taxation, and loss of population."

"But is Canada losing population?" I asked.

"I have mentioned these difficulties in the inverse order of their importance," said Sir Frederick. "Our loss of population is not only the most serious problem, but it grows out of the other two. Here we are, a nation of some eight million people. To the south of us is your country, with a population twelve times as great. You are the richest country in the world to-day. Canada occupies the north end of the continent, and while she is larger than the United States in area, and can match you in some of her natural resources, there are some things that we lack. For example, we cannot grow cotton. We have no hard coal. Most of our soft coal lies on our coasts, while a great part of our industry and population is located in the eastern and central sections of the country. This year, I believe, our bill for coal from the United States will be something like one hundred and twenty-five million dollars, or nearly thirteen dollars per capita of our total population.

"We used to be a country of low costs and low taxes," continued Sir Frederick. "Now we are nearly up to you with regard to both the cost of living and high taxes. On the other hand, you have created a partial vacuum in the United States by your restrictions on immigration. These do not, however, apply to Canadians. Just as great bodies exercise a certain power of attraction upon smaller ones, so your one hundred and ten millions draw upon our eight millions. You are admitting fewer immigrants than your country could easily absorb, with the result that you afford opportunities to our people to better their condition. Strange as it may seem to you, there are many of us who prefer, no matter what happens,

to live our lives under the British flag, but there are also others to whom this does not seem so important. It is they who drift over to you."

While Sir Frederick thus outlined the problems confronting his country, his further remarks made it quite clear that he firmly believes in her future and is proud that he has a part in her development.

In talking with business men, I find that they consider that Canada has been especially fortunate in the extension of her banks abroad. The Royal Bank of Canada and others have branches in the United States and Great Britain, as well as in France and Spain. The branch banks of Canada furnish the entire banking system of Newfoundland, and I have myself done business with their branches in the course of my travels in South and Central America, the British and other European West Indies, Cuba, and Mexico. Canada's branch banks have gone to those countries with which the Dominion has the largest foreign trade, and are an important factor in promoting Canadian business abroad. They furnish Canadian exporters with first hand data on markets, tariffs, and credits in foreign countries. They help to finance exports and also aid the importers to secure materials they need from other lands. An American banking expert has made the statement that with the exception of Great Britain, Canada has the best banking facilities for foreign trade of any country in the world.

I find that the Dominion is gaining in financial strength. In the last ten years the assets of her banks have increased seventy per cent., and the bank deposits have practically doubled. At the same time the value of her production, both in agriculture and industry, has mounted far above

what it was before the World War. There is much evidence to show that the people themselves are better off than they used to be. For one thing, they have nearly two thousand million dollars on deposit in the chartered banks, an average of one hundred and eighty-eight dollars per person. They are buying more life insurance than ever before, the total value of the policies now in force in Canada amounting to over three thousand five hundred millions of dollars. If they continue to increase at the present rate, by 1947 the lives of Canadians will be insured to the amount of more than twelve thousand millions. This insurance represents a sum that will be sufficient to buy three million homes, to keep in comfort sixteen hundred and eighty thousand people, or to educate about four million Canadian children.

"From my window overlooking the wooded ravine through which the Rideau Canal descends in locks to the Ottawa River. I can see the towers of the university-like quadrangle of government buildings."

The library of Parliament stands on the high bank of the Ottawa River, a bit of old England in the Canadian capital. It survived the fire that destroyed the House and Senate chambers.

CHAPTER XI

OTTAWA—THE CAPITAL OF THE DOMINION

I HAVE come to Ottawa to get a "close-up" of the government of Canada, and to see for myself if the city deserves its name, the "Washington of the North." Ottawa gives one an impression of vigour, youth, and energy. It seems up to the minute, and not hanging on the coat-tails of the past like Quebec. It has some of the English flavour of Halifax, but is more modern. Like Washington, it is built on plans that, as they are developed, will emphasize its natural beauties.

Ottawa is becoming a centre of intellectual life as well as of political activity. The city is attracting people of wealth and leisure who find it a pleasant place of residence for all or a part of the year. The government service includes men and women of unusual attainments, who are less likely to lose their places on account of politics than those holding similar offices in the United States. Ottawa is also becoming the headquarters for scientific and other organizations, and is developing rapidly as an educational centre.

Washington has the Potomac, but this capital is on the banks of two rivers, the Ottawa and the Rideau. Its site was chosen only after a bitter struggle between rival cities. Quebec, Montreal, Kingston, and Toronto each wanted the honour, but in 1859 all gracefully accepted the arbitration of Queen Victoria, who chose Ottawa.

It was then a town of less than ten thousand people. It now has more than one hundred thousand. It lies in the province of Ontario, but is separated from Quebec only by the Ottawa River.

In contrast with our national capital, Ottawa is an important city in its own right aside from the presence of the Dominion government. It is one of the chief lumber centres of all Canada, and besides saw mills and paper mills, has a match factory that is among the largest in the world. These industries are run by water-power. Ottawa is at the head of navigation of the Ottawa River, which here is broken by the Chaudière Falls. When Champlain saw these falls the tumbling waters presented a beautiful spectacle. Now they are reduced and obscured by mills and power stations. There is about two million horse-power available within fifty miles, one twentieth of which is developed.

Many of the industries based on the water-powers and the lumber of the Ottawa district are in Hull, across the river. Hull has about thirty thousand people, nearly all French Canadians. Its population is temporarily increased each evening, as streams of Ottawans cross the bridges from the bone dry province of Ontario to the beer and wine cafés of the adjoining territory.

To appreciate all the beauties of the capital one must ride over its thirty miles of boulevards and park drives. The Rideau Canal flows through the heart of the city, giving a picturesque appearance to its business districts, and lending a delightful aspect to the streets and homes in the residential sections. There are block after block of attractive houses that have the canal at their front doors, and others with the canal in the rear. I noticed

more than one canoe moored, so to speak, in a backyard.

Indeed, the city seems entirely surrounded by water and parks. Besides the Rideau Canal, there is the river of the same name, with well-kept parks along its banks. The most commanding sites on the hillsides overlooking the rivers are occupied by fine public buildings and millionaires' residences. There are numerous yacht and canoe clubs, while on the Quebec side of the Ottawa River, above the Chaudière Falls, are several golf courses. In their clubs the Canadians seem to be content to do things on a less elaborate scale than is common in the States, thus making it possible for men and women of moderate means to belong without feeling extravagant. In fact, though none know better than the Canadians how to entertain elaborately whenever they choose to do so, they live more simply than we, and spend more time in outdoor recreations.

Imagine yourself at my side as I write these words, and look with me out of my hotel window. We are in the Château Laurier, a modern hotel built of light-coloured stone in the design of a French château. It was erected by the Grand Trunk Railroad, but now, like the railroad, is operated by the government. It faces Connaught Square, opposite the Union Station, with which it is connected by an underground passage.

If we were to fall from our window, we should land on the bank of the Rideau Canal as it comes out from under Connaught Square. The canal divides Ottawa into two parts. East of the canal is Lower Town, where most of the French residents live. To the east also is Sandy Hill, a fine residential quarter. Just below us the canal descends through a ravine down to the level of the Ottawa River.

Here there are six locks forming a water stairway. The canal connects the Ottawa River with Kingston, on Lake Ontario. It was constructed chiefly for military purposes. After the War of 1812, the Canadians felt that they needed an inland waterway between Montreal and the Lakes that would not be exposed to attack from the American side. For many years Ottawa bore the name of Bytown, after a military engineer, Colonel By, who built the canal.

Now look across the ravine through which the canal drops down to the river. There are the government buildings, arranged in a quadrangle. They are massive structures of rough stone and Gothic architecture that crown the bluff one hundred and sixty feet above the water. They look more like one of our universities than any of our capitols. The Parliament building, with its back to the river, forms one side of the quadrangle. In front of it are several acres of lawn that slope gently down to Wellington Street. Facing the Parliament building are other government offices, business buildings, and the white marble home of the Rideau Club, where politicians from all Canada gather during the legislative sessions.

The government has bought several city blocks near the Parliament quadrangle, on which it will some day erect appropriate structures to house its various departments. Some of them, meanwhile, are accommodated in all sorts of office buildings and remodelled dwellings, a condition that also reminds me of Washington. This fact shows, too, that in the face of the continual cry for greater economy the government machine in Canada is, like our own, getting bigger every year.

The present Parliament house is a new building that will have cost, when complete, nearly twelve million

dollars. It is on the site and about the size of the one burned in 1916, except that it has one story more, and its square Gothic tower will be within two feet as high as the dome of the United States Capitol. The entrance hall, which forms the base of this tower, is a veritable forest of pillars that uphold Gothic arches. The arches and walls have a dappled gray-white appearance, due to fossils in the Selkirk limestone. Arched corridors lead to the Senate wing on the right, to the House of Commons on the left, and straight ahead into the library, the only part of the original building not destroyed by the fire.

I found the Senate chamber a beautiful room, handsomely appointed. Its walls are lined with large paintings of Canadian troops in action in the World War. The ninety-six senators who represent the various provinces are appointed for life by the government in power whenever vacancies occur. Seats in this body are often handed out as political plums. The Canadian Senate has not nearly as much power in national affairs as the upper house of our Congress, but a seat in it means both honour and a living.

The House of Commons, the real arena of Canadian political life, is a long, high-ceilinged room, with a broad aisle extending from the door to the speaker's dais. On each side of the aisle are rows of double desks behind which sit the two hundred and thirty-five members. Those belonging to the majority party are on the speaker's right, and those of the opposition on his left. The speaker's big chair is patterned after the one in the English House of Commons. I sat in it and found it very uncomfortable. Above it is the coat of arms of Canada, carved in wood from Westminster six hundred years old. All around the chamber are galleries for visitors.

The members of the Canadian Congress are not as generously provided for as ours. They get salaries of four thousand dollars a year, with nothing extra for secretaries. Instead of cash mileage allowances they receive railroad passes. The Parliament must meet every year, and the sessions usually last from early in January until May or June. Because of the tendency of members to go home before the adjournment, the House passed a law imposing fines of twenty-five dollars a day for absences during the final two weeks. Our Congress might do well to enact a similar law.

Yesterday morning I drove out to Rideau Hall, a big gray stone mansion in park-like grounds overlooking the Rideau and Ottawa rivers. It is the residence of the Governor-General of Canada, the representative of His Majesty, the King of Great Britain, and the nominal head of the Canadian government. The Canadians pay him a princely salary, furnish him this palatial country residence, and make him a generous allowance for entertainment and travel. They sincerely desire that he enjoy his five years among them, provided that he does not interfere in the conduct of their affairs.

"Just consider," said a Canadian statesman to me today, that the position of the Governor-General in Canada is identical with that of the King in Great Britain. He is a symbol of the unity and continuity of the empire, but his executive duties are purely formal, as he must not take the initiative and must always get the advice of his ministers. Control of the government may shift from one party to another here as in England, but the Governor-General, like the King, continues undisturbed in his office. When his term expires the King names his successor, but

no government in London dreams of making the appointment until it has consulted with Ottawa and ascertained that the man chosen is acceptable to us."

The speaker was a man who has frequently held high offices in the government. Like other Canadians I have met, he believes his country has a more democratic form of government than that of the United States.

"You know," said he, "we in Canada marvel at the strange spectacle you sometimes have in Washington of a president of one party confronted by a majority in Congress of another party. To us, responsible popular government under such conditions is unthinkable. The majority in the House of Commons always forms our government, or administration, as you call it, and the majority leader becomes premier and head of the cabinet. As long as it is supported by a majority of that house, the cabinet is the supreme power of the land in federal affairs. As soon as it ceases to be supported by the majority, it loses the right to govern and a new ministry comes in. Under our system an election must be held every five years, but it may be held oftener. For example, a prime minister who has met defeat in the Commons may advise a dissolution of Parliament and appeal at once to the people in a general election. You Americans vote by the calendar, every two or four years; we vote on specific issues as the need arises. Every one of our cabinet ministers is an elected member of the House of Commons or a member of the Senate, and must answer for all his official acts on the floor of the House."

I asked as to the present attitude toward the United States.

"It seems to me," was the reply, "the relations between

Canada and the United States were never better than they are to-day. The ancient grudges on our side of the border, and the loose talk of annexation or absorption on yours, are now happily things of the past. While we have an area greater than yours, and vast wealth in natural resources, the fact that our population is only one twelfth of yours means that you will for years to come exercise a strong influence upon Canada.

"When you consider that the two countries have a joint border more than three thousand miles long, on which there is no armed force whatsoever; that they have created one joint commission that settles all boundary disputes and another that disposes of questions concerning waters common to both countries; that we are your second best customer and that you are a large investor in our enterprises; that many of our wage-workers have gone to you and many of your farmers have come to us—taking all these things into consideration, one may say that the two peoples have managed to get along with one another in pretty good fashion.

"By closing your markets to us, through high tariffs, you sometimes make things a bit difficult for some of our people. On the other hand, we have erected some tariff barriers of our own. Our fisheries, fruit industries, and manufactures now demand protection, just as your farmers and others insist on having tariffs against some Canadian products. Our people are divided by sectional interests, just as yours are, and both governments have difficulty, at times, in reconciling conflicting desires. But I think Washington and Ottawa will always understand one another, and will work out successfully their mutual problems of the future."

Few Americans realize how independent Canada is.

Canada's half million acres of timber contain fifty per cent. of the forest resources of the entire British Empire. The revenue from lumber and wood pulp ranks next in value to that from agricultural products.

It takes a woodpile as big as a large apartment house to carry one of Ottawa's pulp mills through the winter. These logs will make enough news print to paper two roads reaching around the world.

With the United States as a "horrible example", Canada is trying to safeguard her forest from destruction by fire or wasteful cutting. Airplanes are frequently used by some of the provincial forest patrols.

She pays not a dollar in taxes to the British, nor does she receive any funds from the Imperial Treasury. The relations between the Dominion and the Empire are not fixed by law, but, like the British constitution, are unwritten and constantly changing. Canada maintains a High Commissioner in London, concedes certain tariff preferences to Great Britain and the other dominions, and her premier takes part in the imperial conferences in London. In all other respects she goes along in her own way and does exactly as she pleases. She played a great part in the World War, and would undoubtedly fight again, but only of her own free will. The people regard the Dominion as a member of a "Commonwealth of Nations" united under the British flag, and care little for talk of empire. They have even passed a law putting an end to the system whereby the Crown conferred titles on distinguished Canadians.

CHAPTER XII

THE LUMBER YARD OF AN EMPIRE

I AM in the heart of one of the great timber producing districts of Canada. Every year millions of feet of logs are floated down the Ottawa River. This stream is eight hundred miles long, and, with its tributaries, taps a vast area of forests that feed the maws of the paper and the saw mills of the city of Ottawa. I have watched the latter at their greedy work, which they carry on at such a pace that the cry is being raised that the woodlands of the Dominion are being denuded, and that conservation measures must be adopted.

I have seen great tree trunks squared into timbers so fast that it was only a matter of seconds from the moment they came wet out of the river until they were ready for market. My neck aches from looking up at log piles as high as a six-story apartment, waiting to be converted into matches in one of the world's greatest match factories. You can imagine the size of its output when I tell you that in one year it paid the government nearly two million dollars in sales taxes. At other mills piles of pulpwood, nearly as big, are soon to become paper, and in one I watched huge rolls of news-print taken off the machines and marked for shipment to the United States.

Canada is cutting down her forests at the rate of about three thousand millions of feet a year. Still this is only a fraction of one per cent. of the estimated timber resources of

Canada, and the cutting can go on for a century before the supply is consumed. In the area of her forests the Dominion is exceeded only by Russia and the United States and she is second to us in the amount of lumber produced. The British Empire reaches around the globe, but half of all its forest wealth is in Canada. Not only the United Kingdom, but South Africa, the West Indies, Australia, and New Zealand depend on this country for a good part of their lumber supply.

The Canadians are now getting from their trees a per capita revenue of about seventy-five dollars a year, and this income their government is trying to safeguard. They see in us a terrible example of the extravagant use of natural resources. Of our eight hundred and twenty-two million acres of virgin forest, only one sixth is left, which we are cutting at a rate that will exhaust it in twenty-five years. This does not allow for new growth, which we are eating up four times faster than Nature produces it.

More than nine tenths of all the forest lands of Canada are owned by the government, so that she is in better position than we to control the cutting and provide for the future. In practically every province, lands good only for trees are no longer sold, and one fourth of the forest areas have been permanently dedicated to timber production. Each province administers its own forests, and there is much similarity in their conservation measures and other restrictions. The usual practice is to sell cutting rights to the highest bidders, under conditions that yield substantial revenues to the government and make it possible to supervise operations.

It is estimated that two thirds of the original stands of timber have been destroyed by forest fires, which are still

causing enormous losses. Large sums collected monthly from the timber users are being spent for fire protection. Every railroad is compelled by law to maintain extensive patrols on account of the sparks from locomotives. Several of the provinces use airplanes equipped with wireless telephones or radios to enable their observers to report instantly any blaze they discover. Some of these planes are large enough to carry crews of eight or ten men, who swoop down upon a burning area as soon as it is sighted. In Manitoba an airplane recently carried firefighters in thirty-two minutes to a forest that was three days' canoe journey from the nearest station.

Suppose we go up in one of these patrol planes, and take a look at the forests of Canada. We shall have to travel over one million square miles, for that is their area. One fourth of the land of the Dominion is wooded. The forests begin with the spruces of the Maritime Provinces and the south shore of the St. Lawrence and extend across the continent to the Pacific slope, and northward to the sub-arctic regions. There is still much hardwood left, especially north of the Great Lakes, but the conifers, or evergreens, make up about eighty per cent. of the standing timber, and furnish ninety-five per cent. of the lumber and the pulpwood. In passing over southern Manitoba, Saskatchewan, and Alberta, we shall see a vast area of prairies, the lands which now form the great wheat belt. The foresters say this land once had forests but that they were destroyed by fire in ages past.

We see the finest trees near the end of our air journey. This is in British Columbia, a province that contains the largest, most compact, and most readily accessible stand of merchantable timber in all the world. It has more

than half the saw timber of Canada. In this area, which includes the Rocky Mountains, the Douglas fir is the predominant type. The trees are sometimes forty, fifty, and sixty feet thick, and a single log will make a load for a car. A whole tree may fill a train when cut into boards. Here sixty-foot timbers that will square two or three feet are nicknamed "toothpicks."

Twenty years ago the chief commercial wood of Canada was white pine. It was then the aristocrat of the north woods, and was cut from trees between one hundred and fifty and three hundred years old. Its place has now been taken by the spruces, of which there are five varieties. The spruces form about one third of all the standing timber of Canada. The annual cut amounts to something like two thousand million feet, or enough to build a board walk sixteen feet wide all the way around the world. Notwithstanding this the government foresters estimate that within the last twenty years insects and fires have destroyed twice as much spruce as the lumberjacks have cut down.

Canada's supply of spruce is of enormous interest to us, for it feeds a great many of our printing presses. In one single year Canada has cut as much as four million cords of pulpwood, and four fifths of this goes to the United States in the form of logs, pulp, and finished paper. We Americans are the greatest readers on earth. We consume about one third of the total world output of news-print paper. Our presses use more than two million tons in a year, or nearly twice as much as Europe, which has five times our population.

A generation ago Canada had not a dozen pulp mills, and only ten years ago its product was but one sixth

that of the United States. Since then our production has hardly increased, but the Canadian output has so grown that it will soon exceed that of the States. Indeed, the industry now ranks second in the Dominion. I have before me estimates showing that machines already ordered for new mills and additions will add to the Canadian capacity something like four hundred thousand tons a year. Canada now has more than one hundred paper mills, and if all were run full time at full speed, they would turn out nearly two and one half million tons of paper in a year. The world's largest ground pulp mill is at Three Rivers, in Quebec, the great paper-making centre I have mentioned in another chapter. That province has also the largest single news-print mill, with machines that are turning out a continuous sheet of paper more than nineteen feet wide, at the rate of about eleven miles an hour, or eighty thousand miles a year. Not long ago one hundred tons of paper a day was the largest capacity of any mill. Now this is almost the standard unit in the industry. A four-hundred-ton mill is operating at Abitibi, and plants of five-hundred-ton daily capacity are already planned for.

It takes about a cord of wood to make a ton of newsprint, or enough, if rolled out like a carpet, to paper the pavement of a city street from curb to curb for a distance of three and one half miles. A year's output of a hundred-ton mill would make a paper belt six feet wide reaching four times around the waist of old Mother Earth. Take a big Sunday newspaper and spread its sheets out on the floor. You will be surprised at the area they cover. Now if you will keep in mind that it sometimes takes more than a hundred tons of paper to print a single issue you will

realize how fast the forests of Canada are being converted into paper sufficient to blanket the earth.

It is several centuries since Shakespeare found

> Tongues in trees, books in the running brooks,
> Sermons in stones and good in everything.

It remained, however, for our age, and especially North America, to make these tree tongues speak. The world never had enough paper until the process of making it from wood was discovered, and even now it can hardly cut down its forests fast enough to satisfy the insatiable demand of the printing press. I have visited paper mills in both the United States and Canada, and have watched the miracle of transforming a log into the medium of paper that carries the messages of our presidents, the doings of Congress, the news sensations of the times, or the strips of comic pictures we see every morning. Let me tell you how it is done.

Most of the Canadian paper mills are located on rivers. The trees are cut during the winter, and hauled on sledges over ice and snow to the banks of the nearest stream. In the spring the logs float down with the freshets, and the only transportation expense is the crews of men who follow the "drive" and keep the mass of logs moving. Sometimes jams or blocks occur that can be loosened only by dynamite. As the logs move down stream the mills catch them with booms strung across the river. Each mill picks out its own logs and releases the rest to continue their journey.

Labour agents in Montreal, Quebec, and other cities are now recruiting gangs of lumberjacks for this season's operations. A single firm of this city employs six thousand men and has two thousand at work in the woods every win-

ter. The lumberjacks live in camps, which each year are pushed farther north as the forests diminish. The work is hard, but the men are well fed and have no expenses, so that they can, if they choose, come out of the woods in the spring with a good sum in cash.

At a mill, the logs are fed into the machinery by means of conveyors, and they hardly stop moving until they come out as paper. The first step is to cut them into two-foot lengths and strip off the bark. Then they are ready for grinding. This is done in batteries of mills, each containing a large grindstone making two hundred revolutions a minute. Several of these two-foot lengths are put into a mill at a time, and pressed against the grindstone in such a way that they are rapidly torn into fine splinters. As the wood is ground up it falls into the water in the lower part of the mill and flows off. I asked a workman to open a mill I was watching to-day. As he did so I reached in and drew out a handful of the dry pulp. It was hot, and I asked if hot water was used. He replied that the water went into the mill almost ice cold, but that the friction of grinding was so great that it soon boiled and steamed.

The wet pulp passes through various mixing and bleaching processes, until it becomes a gray-white mush that looks like chewed paper. It is then ready for the paper machines. It flows first on to a broad belt of woven copper wire screening, many times finer than anything you use in your windows. As it passes over this moving belt, some of the water is sucked out, and a thin coating of pulp remains. This passes on to a cloth belting that carries it over and under a series of huge cylinders, heated by steam. These take out the rest of the water, and the pulp has become a sheet of hot, moist paper. Shiny steel rollers give

The increasing demands of our printing presses are pushing Canada's lumber-jacks farther and farther into the forests to cut the spruce logs with which the paper mills are fed.

Some of the money voted the Toronto Harbour Commission to prepare the port for the shipping of the future has been spent in providing the people with a great beach playground at Sunnyside.

Although Ontario leads all other provinces in its industries, it is essentially an agricultural region, well adapted to mixed farming. The farmers have many coöperative organizations that also go in for politics.

the paper a smooth, dry finish. It is then wound on great spindles, and made into the huge rolls that every one has seen unloaded at newspaper offices.

In making paper, it is necessary to mix with the ground pulp a certain proportion of sulphite pulp, made by a chemical instead of a grinding process. For the sulphite the logs are cut into chips and put into great vats, where they are steam cooked with sulphurous acid. The acid disintegrates the wood, just as the stomach digests food, but it does not destroy the fibre. The result is that sulphite pulp has a longer, tougher fibre than the pulp obtained by grinding, and for this reason it is mixed with the ground pulp to give the paper greater toughness and strength.

Though it has not been very long since Canada discovered that her pulpwood forests are worth more than her gold mines, she is far from satisfied with the present situation. There is a growing movement in favour of stopping the export of pulpwood to the United States and insisting that it shall be manufactured into paper within the Dominion. It is claimed that this will not only check depletion of the forests, but will bring more paper mills to Canada. Those who support the plan have calculated that Canada now gets ten dollars out of every cord of pulpwood exported, half of which goes to the railroads. If all the wood were milled before leaving the country, they say, Canada would get five times as much, or fifty dollars instead of ten out of each cord. The government has authority to enforce the prohibition demanded, but the proposal meets with considerable opposition. The small farmers especially say that they can now get better prices for the spruce cut on their wood lots than if their market was confined to Canada only.

At the present time the total investment in Canadian paper and pulp mills is about four hundred million dollars, and the wages and salaries paid amount to over forty millions a year. To manufacture all the pulpwood now cut every twelve months would require one hundred and fifty million dollars additional capital, the erection of more than thirty new mills with a capacity of one hundred tons a day each, and eight thousand employees earning in excess of eleven million dollars a year.

As a matter of fact, our own paper business has already moved to Canada to a far greater extent than is commonly realized. Many of our largest newspapers have not only their own mills in Canada, but they own also the timber on thousands of square miles of forest lands. One estimate says sixty per cent. of the timber resources of Canada are now owned or controlled by Americans. The other day, while I was in Halifax, a group of Americans bought the timber on a seven-thousand-acre tract in Nova Scotia. There are many similar American holdings.

Canada's water-power and her paper and pulp industry have been developed together, and each is essential to the other. It takes practically one hundred horse-power to produce a ton of paper a day, and this means that the mills must locate near available water-power or pay big bills for fuel. One of the water-power experts at Ottawa tells me that on a recent date the paper and pulp mills were using more than six hundred and thirty-seven thousand hydro-electric horse-power every twenty-four hours, in contrast with only sixty-two thousand horse-power in the form of steam. Some of the mills get their power for only one tenth of a cent per kilowatt hour or one one-hundredth of what residents of Washington, D. C., pay for their electric light.

CHAPTER XIII

TORONTO—THE CITY OF PUBLIC OWNERSHIP

SAID an American whom I met in Toronto the other day:

"I don't care for this place; it's too much like home. When I travel I want to see something different."

I don't know just what this man hoped to find here in the second largest city in Canada. I fear that he expected to find Toronto so inferior that he would be able to indulge in some boasting at the expense of the Canadians. If so, he came to the wrong place, for, judged by American standards, Toronto is thoroughly alive, first class, and up-to-date.

Located on the north shore of Lake Ontario, and the political and commercial capital of Ontario province, Toronto is the "Chicago of Canada." It is larger than Buffalo or San Francisco, and nearly as big as Los Angeles. It is the greatest live-stock market of all Canada, and the chief butcher shop of the Dominion. Like Chicago, it is on the route of the transcontinental railroad lines. It is the centre of tourist travel to Niagara Falls, the Thousand Islands, and the vacation lands of the North. It supplies the mines, the mills, and the farms of a region rich in natural resources, and fast becoming as highly industrialized as New England. Ontario does more than half of the manufacturing of Canada, and one third of the factories of the province are located in Toronto. Seven of

the great chartered banks of the Dominion have their home offices here, and the city is second only to Montreal in its financial strength.

In Toronto, I find myself again in a city of twenty-story skyscrapers, big department stores, and American "hustle." It is, I suppose, because it does not seem "foreign" that visitors from the States find this city disappointing. The people are mostly of British extraction, and, unlike Montreal, there are but few French, and comparatively few Catholics.

The city was founded by Tories from New York just after our Revolutionary War, and it soon became the capital of Upper Canada. Our soldiers burned it once and captured it twice during the War of 1812. Its name Toronto, an Indian word meaning "place of meeting," was chosen about a century ago. Since then the city has doubled in population and wealth every fifteen years.

In the residential districts, I saw scores of magnificent homes that compare favourably with those of any of our large cities. The town is built entirely of brick, and sixty-seven per cent. of the homes are occupied by their owners. The residents, all of whom seem to belong to a boosters' club, tell me that they have the lowest death rate but one of any city of five hundred thousand population in North America, and that they have fewer deaths from tuberculosis than anywhere else on the hemisphere.

I have been out to Queen's Park to see the provincial government buildings. Here also is Toronto University, the largest in the British Empire, with several thousand students of both sexes. The park is approached by University Avenue, a broad street with rows of elm and chestnut trees on each side. There are many other schools and col-

leges, making Toronto the educational centre of Ontario.

It was at the University of Toronto that Dr. F. G. Banting discovered insulin, the new treatment for diabetes obtained from the pancreas of cattle. Doctor Banting and his associates have since received many honours. The Dominion government gave him seventy-five hundred dollars a year for life, so that he might continue his investigations, while the provincial government has established him in a chair of medical research at Toronto University paying ten thousand dollars a year. Instead of commercializing his discovery, the doctor had it patented in the name of the university, and the royalties are devoted to research.

Toronto is about equidistant from New York and Chicago, and nearly midway between Winnipeg and Halifax. It is only three hundred and thirty-four miles from Montreal, but between the two cities are the rapids of the upper St. Lawrence, which so far have prevented the lake port from becoming accessible to large ocean-going vessels. The present canals along the St. Lawrence can accommodate ships up to twenty-five hundred tons, but Toronto has a plan for bringing ten-thousand-ton steamers to her front door. She proposes to overcome the rapids and shallows with lakes and canals, and at the same time utilize the fall of water, which exceeds two hundred feet, to generate electricity.

The locks of the new and larger Welland Canal around Niagara Falls have been built thirty feet deep and eight hundred feet long. When this work is completed, the improvement of the St. Lawrence will be the only thing needed to make possible the passage of deep-water ships from the Atlantic to Lake Superior. The St. Lawrence project has the enthusiastic support of the people of middle

Canada, who see their grain of the future going direct to Liverpool in steamers loaded at the lake ports. This will cut down the freight charges on every bushel and add millions to the farmers' profits.

Our own middle western states also want this Lakes-to-the-Atlantic waterway, but New York and Buffalo, which have grown fat on handling freight from the Great Lakes, oppose it. So does Montreal, for fear that her port might suffer, just as Quebec did when the St. Lawrence was dredged out from that city to Montreal.

Since the St. Lawrence, for part of its course, borders the state of New York, the project requires the coöperation of the United States. The International Joint Commission, representing both Canada and the United States, after investigation, unanimously approved it. It recommended the construction of nine locks, thirty-three miles of canals, forty miles of lake channel, and one hundred miles of river channel improvements. It also recommended the construction of a hydro-electric power plant near Ogdensburg, New York, which, it is estimated, would produce sixteen hundred and forty thousand horsepower, to be divided between the United States and Canada. To do all this is comparable to the building of the Panama Canal. It is estimated that the job will take about eight years and will cost more than a quarter of a billion dollars.

Meanwhile, Toronto is so sure that the project will be carried out that she has already spent more than twenty million dollars in getting her harbour ready for the business she expects in the future. Her port to-day is like a newly built palace, awaiting the birth of an heir to the throne, with the king still a bachelor.

An island lying about a mile offshore from the city gives Toronto a natural harbour. The Harbour Commission has built breakwaters, channels, and anchorages, and erected piers and berthing spaces to accommodate fleets of large tonnage vessels. So far, however, these improvements are used mostly by passenger steamers handling the summer tourist travel to points on the lakes and along the St. Lawrence. In part the work of the Harbour Commission has already paid for itself. It has reclaimed a large tract of marshland along the eastern shore of the harbour and converted it into industrial sites, equipped with docks, railroad tracks, and other facilities. There are now more than eight million dollars' worth of buildings and machinery in operation on this area.

The Harbour Commission has developed the lakeside not only for commercial purposes, but also for the use of the people. West of the city it has built Sunnyside beach, a half mile long, with accommodations of all kinds for seventy-five hundred bathers. Across the harbour is Island Park, another great playground.

Toronto was the first city in the world to establish a municipal athletic commission to promote sports and outdoor games. Though baseball is not native to Canada, six thousand Toronto boys played in regularly organized leagues last summer, and eight thousand soccer or association football players were listed with the commission. The city maintains two public golf courses, and there are country clubs, canoe clubs, and yacht clubs.

Another publicly owned institution in Toronto is an *abattoir*, built and operated by the city. Here any cattle dealer or local marketman may have his animals killed under the most sanitary conditions. The city owns also its

waterworks and has a Hydro-Electric Commission which furnishes power to its factories and homes at low rates. It has invested more than two million dollars in grounds and buildings for the Canadian National Exhibition, held here every September with an attendance of over a million.

Its street railway system is Toronto's latest and largest venture in public ownership. Both the cars and the service are by far the best I have seen anywhere in Canada, and few of our cities can show better. The city paid forty-five million dollars for the property, and within two years it had doubled the single fare area, increased the mileage twenty-five per cent., built extensions out to the suburbs, replaced antiquated cars with the newest and best, and speeded up service. On the main lines, the cars are very large and during rush hours they are run in twos, coupled together. In the newer cars the conductor sits perched in a cage in the middle. Passengers enter by the front door, and if they pass down the aisle to sit in the rear they pay the conductor as they go by. If they take seats in the front half, they do not pay their fares until they get up to leave by the door in the middle. It is interesting to know that the first electric street car in America was operated in Toronto.

Conservative Montreal looks upon Toronto's plunges into public works as the height of folly, and sometimes gives her sister city a lecture. Replying to such criticism, a local paper said the other day it supposed Montreal would have every Torontoan go to bed at night saying these verses:

Oh, let us love our occupations,
Bless the squire and his relations,
Live upon our daily rations,
And always know our proper stations.

Unlike Montreal and Quebec, Toronto is a city of sky-scrapers, and the Yonge Street canyon makes the American visitor feel much at home. Toronto has hustle, enterprise, and the courage to do whatever it pleases.

Flax raising has become important in southwestern Ontario. The crop competes with the best Russian product. The Canadians use labour-saving devices to keep costs down to European levels.

But Toronto comes honestly by its independent spirit and bold experiments for the public welfare. The entire province of Ontario is imbued with the same tendency. With an area eight times that of New York, it is, next to Quebec, the largest province of Canada, and with three million people, mostly of British extraction, excels them all in population. It is richer in mineral wealth, agricultural resources, and industrial development than any other province. The people believe in their future and they show the courage of their convictions when it comes to going in debt to back public enterprises.

The province owns a railroad that taps the Cobalt silver mining district and the northern agricultural lands. The main line of the road extends from the Canadian Pacific and Canadian National lines at North Bay two hundred and fifty-three miles northward to Cochrane, where it meets the northernmost of the three transcontinental routes.

A few years ago Ontario increased its expenditure for good roads from two million dollars a year to nine millions. It created the Ontario Hydro-Electric Commission, which generates and distributes more electric power at lower rates than any other similar body in the world. The province pensions needy mothers, and its public health service furnishes serums and toxins free to the public.

The Ontario parliament has no upper house, but only a single chamber to which members are elected by the votes of both men and women. Not long ago the farmers' organizations captured enough seats to give them control of the government.

In Toronto I have seen so many familiar names on the factory buildings that I have had to ask myself whether I was in a British Dominion or back in the United States.

These are the "branch plants" of American firms, established here to be inside Canada's tariff wall and to get the benefit of the preferential tariffs conceded by Great Britain and her dominions to Canadian products. From automobiles to silverware, and from bridge steel to fountain pens, many of our best known American goods are not only used but made in Canada. Some of the branch plants bear the same names as at home, but many adopt for Canadian use designations that give no trace of their American origin. For example, world-famous corporations that use "United States" or "American" as part of their names, are the "Dominion" this or the "Imperial" that in Canada. This policy caters to the growing movement among the people to buy only goods "made in Canada." The American branch-plant system accounts in part for the resemblance of Toronto to American cities. On every hand I see electric signs, window displays, and bill-boards bearing the same appeals to buy the goods that are so extensively advertised at home.

No one knows just how many American branch factories Canada has, but their number is well over one thousand. There are more than two hundred in Toronto alone, and as many more elsewhere in southern Ontario. Montreal has many American branch plants and American owned enterprises. Its largest hotel belongs to an American syndicate, and so does my hotel in Toronto.

Americans control nine tenths of the automobile accessory business of Canada, and in their branch plants they make three fifths of the Dominion's automobiles. Practically all of our well known firms devoted to low and moderate priced cars have big factories in Canada, and they do practically all their exporting to Australia, New

Zealand, Great Britain, and South Africa through their Canadian branch plants. This export business amounts to more than twenty-five million dollars a year, while the cars made here for the Canadian market represent a value three times as great.

In other lines American capital is conspicuous. Half of the Canadian rubber factories are owned by Americans, and nearly half of the meat packing, paint, brass, condensed milk, car construction, and electrical apparatus industries represent American money. American controlled concerns do more than half of all the oil refining, while two hundred and fifty million dollars of our money is invested in the pulp and paper industry.

Altogether, it is estimated that American investments in government loans, corporation bonds, land mortgages, and industrial enterprises amount to two thousand five hundred million dollars. Our stake in Canada has been increasing rapidly ever since 1914, and now it nearly equals that of the British. Within a few years it will probably be much greater. Nearly one sixth of all the money we have invested in foreign countries is in Canada, and in return for the capital Canada is now buying from us more than three fifths of her annual thousand million dollar purchases abroad. In fact, her people are our best customers; their purchases of us amount to eighty-three dollars per capita a year as compared with five dollars for all Europe and fifty cents for China.

CHAPTER XIV

WATERFALLS THAT WORK FOR THE PEOPLE

HOW much do you pay for the electric current that lights your home and runs your heater, vacuum cleaner, and washing machine? In Washington I am charged ten cents a kilowatt hour, and unless you are especially favourably located I venture your bills are figured at about the same rate. To be sure, the monthly expense is not great, but wouldn't you feel free to use more electricity if your bills were cut down one half or two thirds?

That is just what has happened to hundreds of thousands of people in southern Ontario, and I have been devoting the last couple of days to finding out how it was done. I have made a special trip from Toronto to Niagara Falls, and am now writing almost in sight of those mighty waters. I have visited the world's biggest power station and talked here also with the engineers of the Ontario Hydro-Electric Power Commission, which sells the current to the public at cost. Again I am impressed with the enterprise and the courage of the people of this province, and the way they use their government to get what they want.

Canada's water-power is, as you know, among her chief assets, and the Dominion is one of the greatest water-power countries on earth. Although the United States has more hydraulic power available for development, yet in proportion to her population Canada actually uses three

times as much as we do. She has in her rivers and streams a total of about eighteen million low-water available horse-power, of which about one sixth is now being used. Quebec and Ontario possess between them nearly two thirds of the total water-power resources, of which Ontario has the larger amount developed, and Quebec the more in reserve. These two provinces, like the eastern United States, contain also the greater part of Canada's industries, seventy per cent. of which are now run by water-power. This cheap power is one of the principal reasons why Ontario and Quebec do most of Canada's manufacturing and have so many American branch plants.

Ontario's biggest single water-power is in the waters of Niagara Falls. As you know, the Niagara River connects Lake Erie and Lake Ontario. It forms also a part of the boundary between the United States and Canada. For many years commercial power companies have operated on both sides of the Falls. By treaty, Canada and the United States have limited the commercial use of the Falls, and have fixed the amount of water that can be diverted from them at twenty thousand cubic feet a second on the American side, and thirty-six thousand feet on the Canadian side. This apportionment was made because the major part of the Falls is on Canada's side of the boundary, and much power is imported by the United States from Canada. The engineers say that if the governments will let them they can divert much more of the water in such a way that the beauty of the Falls will not be impaired.

The Ontario Hydro-Electric Power Commission has revolutionized the situation on the Canadian side. The Falls have been put to work directly for the people, private corporations and profits have been eliminated, and,

through the building of a giant new power station, the mighty forces of the falling waters have been made more productive than ever before. The Commission is distributing Niagara power to points two hundred and fifty miles away, and in addition is operating more than twenty additional power producing stations. It has built up a super-power system that covers southern Ontario. It also supplies power at the head of the Great Lakes. Through it more than three hundred cities, towns, and smaller municipalities are supplying themselves with power "at cost."

The Commission is the world's largest publicly owned power enterprise, having assets worth two hundred and fifty million dollars. It is claimed that nowhere else on earth do so many people, spread over so large a territory, enjoy such low-cost electricity as is the case under Ontario "Hydro." It distributes six hundred and fifty thousand horse-power in electrical energy, and, when all its present projects are in full operation, the daily output will be more than a million horse-power. Canada's coal bill would be three hundred million dollars a year more if "Hydro" power were produced by fuel from mines.

I can make you see in a flash just what all this means to the people. Below the mists of Niagara Falls the river is crossed by the Railway Arch Bridge. Half this bridge is lighted by an American company, and the other half by the current from the Canadian side. The lighting load for the lamps is the same in both sections, yet the cost last year of lighting the Canadian portion was one hundred and ten dollars, while the American company charges at its regular rates totalled two hundred and forty. Now you know why citizens in Ontario go to the polls and

vote their municipalities into partnership with "Hydro," as the Commission is popularly called.

The "Hydro" was created because the towns of southern Ontario felt that they were not getting the full benefit of Nature's great power station at their doors. They then secured a charter from the provincial legislature at Toronto to form a partnership for the purpose of buying power and selling it to themselves. The Ontario Hydro-Electric Commission was created to handle the business. In 1910 it began operations by distributing one thousand horsepower, purchased under contract from a commercial company at Canadian Niagara. Four years later it was selling seventy-seven thousand horse-power, and in 1917 it purchased outright the company from which it had been buying current. Meanwhile, more and more cities and towns were joining the partnership, additional power stations were being bought and built to supply the growing demand, and as consumption rose rates went down. The provincial authorities are now talking about a shortage of power in the near future unless the scheme for building dams and canals along the St. Lawrence is started at once.

I am told the operations of "Hydro" have not cost the taxpayers of Ontario a cent in interest charges or capital investment. The whole scheme actually pays for itself as it goes. This is how it is done: The provincial government acts as banker for the Commission, loaning it money with which to build power stations and transmission lines. These loans are covered by the pledges, in the form of bond issues, of the cities, through the Commission, to meet the interest and make repayment of the capital investment. Each city issues twenty-year bonds for its local central station and distributing system. Payments on both in-

terest and principal are met out of each year's receipts, so that eventually the entire power system will be free of debt. Nearly fifty cities, in fact, are already in the clear on their investment, and each year brings others to the same situation.

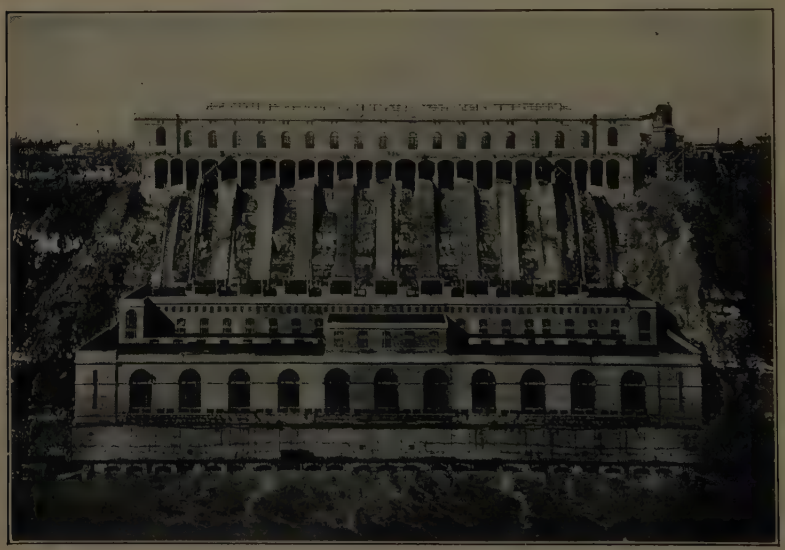
The basic principle of "Hydro" is a partnership of municipalities to obtain power at cost. The Commission makes all the expenditures necessary to develop power and deliver it to the cities. It determines the rates at which the cities may re-sell the power to local consumers. Each year the probable cost of power is estimated for each city, with allowances for interest, depreciation, reserves, and contingencies. This fixes the rates for the next twelve months. At the end of the year, the actual cost is calculated. If the expense has been more than the rates previously fixed, the cities are called upon to make up the difference; if the cost has been less, the partners get rebates on the year's bills.

When I looked for the directing mind behind all this amazing development, I quickly found it. It is in the person of Sir Adam Beck, formerly a box manufacturer of London, Ontario, and the only chairman the Commission has ever had. He is one of the most popular figures in all Ontario, and it is largely to the organizing genius and driving power of his personality that the success of "Hydro" is due. He sits in Parliament, where he keeps on the alert for the welfare of the Commission's work, and manages in person its relations with the provincial government.

The cold facts about "Hydro" make it easy for Sir Adam to demonstrate its achievements. In his home town of London, for example, where formerly the monthly con-

The Niagara Peninsula, along the north shore of Lake Erie, is one of the finest fruit-growing districts in the world. Among other advantages the farmers here have cheap power from the Ontario "Hydro".

The big ditch that feeds the giant power station was cut through solid rock for miles and carries a stream of water thirty-nine feet deep and fifty feet wide, or more than the flow of a river.



A bucket of water dropped down this cliff to the Niagara River would strike with the force of thirty horse-power. Imagine 20,000 buckets dropped every second and you have the capacity of this 600,000 horse-power station.

sumption of electricity averaged less than twenty kilowatt hours for each household, seventy-five kilowatt hours are now used. To an extent formerly undreamed of, power has been put into the homes of the people, and they are using electric appliances in far greater number than persons of similar circumstances in the United States. Electric cooking stoves are being installed in southern Ontario at the rate of one thousand a month. Workingmen's wives have toasters, electric washers, electric fans, electric heaters, curling irons, and everything else the appliance companies can devise.

The Commission is especially proud of the way it has taken electricity out to the farms. Private companies usually find rural extensions too expensive, on account of the long distances between installations, and the relatively small volume of current used. The Commission has now enough rural lines to reach from New York to Atlanta, and it serves as many country homes as there are people living on farms in Rhode Island. Although the rates are higher than in the cities, I find that a farmer can light his house and barns, run an electric stove and household appliances, and a three-horse-power motor besides, for from six to eight dollars a month. The farmers of Ontario can afford to use electricity to run their pumps, separators, churns, milking machines, sawmills, choppers, and threshers—not because they are richer than other farmers, but because of low-cost power.

I have before me a schedule of the rates charged in the twelve largest cities of the province. For domestic service the average net cost ranges from 1.3 cents per kilowatt hour to 2.8 cents per kilowatt hour. The rates vary chiefly with distance. Toronto, ninety miles from Niagara, pays

2.1 cents per kilowatt hour, while Windsor, two hundred and fifty miles to the west, opposite Detroit, Michigan, is charged 2.6 cents. Commercial users, such as stores and office buildings, pay slightly higher rates, while factories are charged from $11.75 to $28.66 per horse-power per year. As with commercial companies, the "Hydro" rates decrease with the amount of power used. For households the secondary or larger-user rate is nowhere more than 1.8 cents, and in most places it is less. In Toronto, the average household electric light bill is less than a dollar and a quarter a month. At Windsor it is less than a dollar and three quarters. In the city of London, Ontario, the household consumption of electricity has under "Hydro" increased more than four hundred per cent. and the average cost has been reduced to less than one fourth of the former charges.

CHAPTER XV

NIAGARA'S GIANT POWER STATION

HYDRO'S" biggest feat in physical construction is the great development, known as the Queenston Chippewa plant, on the Niagara River. This station is designed to produce six hundred thousand horse-power, or about one sixth as much as all the electrical energy now generated in Canada. Suppose we visit it with one of the engineers. Stepping into an automobile, we drive first toward the falls, now partly obscured in the clouds of mist from the tumbling, roaring, boiling waters. Our way lies through the park the Canadians have made so that the people may enjoy for all time the approaches to this monarch among the wonders of Nature.

We stop at Chippewa, at the mouth of the Welland River. This stream used to empty into the Niagara River above the falls, but to-day its channel carries the water diverted from the Niagara for the supply of the power station. The river was deepened and widened for a distance of four and a half miles, and then a canal was dug through the remaining eight and a half miles to the site of the plant. Now we turn back, and as our car passes over one of the numerous bridges across the big ditch, we look down upon a miniature Panama Canal, fifty feet wide at water level, and thirty-nine feet deep. In many places it was cut through hills of rock to a depth of more than

one hundred feet. When the station is operated at full capacity, the flow of water through the canal is more than twice that of the Connecticut River.

Seven miles below the falls we come to the power plant. If your nerves are steady, walk out to the cliff and see where we are. Look first across the great gorge. Those hills over there are in the state of New York. See their steep, rocky sides, with vari-coloured strata exposed by the wearing action of the Niagara River through millions of years. To our left, and hardly a mile away, the high plateau suddenly drops off; below it are the glistening waters of Lake Ontario. We are near the end of the escarpment over which Niagara Falls once plunged into the lake.

Now look straight down; the Niagara River is three hundred feet below us. From this height it looks like an innocent stream. It is really a raging torrent in the final throes of its mad struggle to get into Lake Ontario. The workmen clinging to the sheer, rocky face of the cliff under our feet, and boring into it with their drills, seem like huge insects using their stingers. That big block of concrete, resting on a shelf carved out of the rock and washed by the current, is the power station. It has the dimensions of an eighteen-story office building, and part of it is lower than the surface of the river.

The huge steel penstocks, or pipes, through which the water rushes to the waterwheels below, are set in grooves cut in the rock. Each of them is twice the diameter of a big dining-room table. The water enters the penstocks from a great pool fed by the canal and, dropping, creates this mighty stream of electrical energy, which surpasses any that can be produced right at the Falls. The reason for this is that while the total drop in the Niagara River

is three hundred and twenty-seven feet, the height of the Falls is only one hundred and sixty-seven feet. That is the maximum "head" of water available to the power stations located right at the Falls. But from where we stand the drop to the waterwheels is exactly three hundred and five feet, or nearly twice as great as that at the falls. This station, in other words, utilizes all except about twenty feet of the difference in level between Lake Erie and Lake Ontario. It does this by taking in the water of the Niagara River at Chippewa and carrying it for thirteen miles nearly to the end of the Niagara escarpment. There is a fall of only twelve feet in the whole length of the canal.

Every cubic foot of water per second that flows through the penstocks generates thirty horse-power, as compared with about sixteen horse-power per foot per second developed by the stations nearer the falls. The Canadians are thus making the water of Niagara work for the people at almost twice the efficiency ever obtained from its waters before.

Let us see just what this means. An ordinary pail holds about one cubic foot of water. Suppose, as we stand on the brink of the gorge, I hand you pails full of water, and that you let them fall, one every second, to the river below. If the force of this fall could be applied to a machine as efficiently as flowing water, each pailful would generate electricity to the amount of thirty horse-power, or an amount about equal to the energy of a five-passenger touring car when run at full speed. Imagine twenty thousand such pailfuls being fed into the penstocks every time your watch ticks, and you will then understand what the six hundred thousand horse-power capacity of this station means.

Step with me into the electric elevator that goes down the face of the cliff to the power house. At the bottom we find the offices of the engineers and experts in charge. There is, also, a restaurant for the workers. One huge room is filled with the switches and recorders which keep these men constantly informed of conditions in all parts of the plant and enable them to control every detail. We descend still farther to the lower levels, where are the giant waterwheels and generators. We prowl around in vast subterranean chambers and gaze at one of the sixty-thousand-horse-power generators. There is no visible motion and almost no sound, yet it is producing enough power to move at high speed a procession of two thousand motor cars, or to drive two Majestics or Leviathans across the ocean.

The generators are of the vertical type. They are mounted above the waterwheels, each nine feet in diameter, which keep them turning at the highest permissible speed. The wheels are encased in steel, and we can see nothing but their outer shell. A muffled roar is the only sign of the mighty force they are creating. It is difficult to realize that such tremendous energy can be completely tamed and working in harness, and we shiver as we wonder what would happen if one of these mechanical Titans should suddenly break loose.

Each generator is a huge affair, as tall as a four-story house, and a rope eighty feet long would hardly reach around it. Its largest portion weighs more than three hundred tons. It reminds us somewhat of a merry-go-round, only in this case the whirling portion is all inside, and turning so fast that it seems to be standing still. It is so big that it would take thirty men, standing close to-

gether, to encircle it, and it is making one hundred and eighty-seven and one half revolutions a minute. We look through a little window in the bearing case and see a miniature lake of two hundred gallons of frothing oil that furnishes lubrication. So much heat is developed in the operation of the generator that cold air must be fed to it. In warm weather, it requires thirteen hundred and eighty thousand pounds of air every two hours and a half, or exactly as much as the total weight of the generator itself. In winter the air warmed by the generators is utilized for heating the power station.

On the trip down to Niagara Falls from Toronto I had an opportunity to see something of what cheap power has done for southwestern Ontario. I passed through Hamilton, a place of more than one hundred thousand inhabitants, with plants operated by Niagara. Here are a large number of American branch factories using electric current that costs them less than fifteen dollars per horse-power per year. As in London, Windsor, Brantford, Kitchener, and other towns, the manufacturing establishments of Hamilton are increasing in number and size, and the people say that one of the chief reasons for their prosperity is the "Hydro" power system. In riding over the country I was struck with the well-cultivated farms and the attractive homes. I passed through the heart of the Niagara fruit district, which yields rich crops of grapes, apples, peaches, and other fruits. Most of the farmers now have electricity to help them with their outdoor work and lighten the labours of their wives as well.

One of the engineers I talked with has given me a new appreciation of what development of water-power means to Canada. He tells me that each thousand horse-power

developed brings an ultimate investment of eighteen hundred and sixty thousand dollars, which provides work for twenty-two hundred persons and pays them wages amounting to five hundred seventy-one thousand dollars a year. The cost of building and operating the power station itself represents only thirteen per cent. of all this; it is the application of the new energy in shops, mines, and mills that is responsible for the bulk of the investment. A new power development attracts industries; these in turn attract workers and their families; the latter bring in their train the tradesmen and the professional people needed to serve them. In this way new towns come into being, and old ones start to grow. Water-power is sometimes called "white coal." It should be called "white magic."

Canada is one of the richest countries in the world in its water-power. Engineers calculate that every thousand electric horse-power developed from her waterfalls eventually provides employment for more than two thousand people.

Since their discovery in 1903, the Cobalt mines have yielded silver bullion worth more than $200,000,000. These huge piles of tailings were formerly thrown away as waste. They are now being worked over again at a profit.

CHAPTER XVI

THE SILVER MINES OF NORTHERN ONTARIO

TAKE up your map of North America and draw a line from Buffalo to the lowest part of Hudson Bay. Divide it in half, and the middle point will just about strike Cobalt, the centre of the world's richest silver deposits. I have come here via North Bay from Toronto, more than three hundred miles to the south, and am now clicking my typewriter over ground that has produced upward of one million dollars an acre in silver-bearing ore. For a long time it has turned out a ton of silver bullion every twenty-four hours.

There are said to be only two real silver-mining districts in the world. One is at Guanajuato, Mexico, where the veins are of enormous extent but yield a low grade of ore. The other is here at Cobalt, where the deposits, though comparatively small, are almost pure silver. In practically all the other great silver districts the metal is a by-product. The Anaconda mine in Montana and the Coeur d'Alene in Idaho are both famous silver producers, but in the former it is a by-product of copper, and in the latter, of lead.

Twenty years ago, when I visited Cobalt shortly after the discovery of its underground wealth, I rode all day on the Ontario government railway through woods as wild as any on the North American continent. The road wound its way in and out among lakes, sloughs, and swamps.

The country was covered with pine and hardwood, and so cut up by water that one could have gone almost all over it in a canoe. Even along the railroad it was so swampy and boggy that the telegraph poles had to be propped up. Outside the swamps it was so rocky that deep holes could not be made, and in such places great piles of rock were built up about the poles to support them.

Some of the country was covered with bogs known as muskeg. This is a bottomless swamp under a thin coating of vegetation, through which one sinks down as though in a quicksand, and, if not speedily rescued, is liable to drown. Hunters in travelling over it have to jump from root to root, making their way by means of the trees that grow here and there. There is said to be still much of this muskeg in the region of Hudson Bay and almost everywhere throughout this northland. Much of it has been drained, leaving a land somewhat like that of northwestern Ohio, which was once known as the Black Swamp.

Reaching Cobalt, I had to rely on the miners for living accommodations. Log cabins and frame buildings were going up in every direction and a three-story hotel was being started, but many of the people were still living in tents or in shacks covered with tar felt. Even the banks hastily established to take care of the rapidly growing wealth of the settlement were in tents, and the bankers slept at night beside their safes with a gun always within reach. Streets were yet to be built, and the wooden and canvas structures of the town straggled along roads winding this way and that through the stumps. In the centre of the settlement was a beautiful little lake that one could cross in a canoe in a few minutes, and the mining properties extended back into the woods in every direction.

To-day, although still possessing many of the characteristics of the typical mining camp, Cobalt is a busy little city of six or seven thousand inhabitants. The tar shacks and tents have been replaced by modern buildings—banks, churches, stores, and homes—many of them erected since the big fire in 1912. There are good schools, including a school of mines, and the muddy roads have long since given way to sidewalks and streets. Even the lake has gone, its waters having been pumped away to allow mining operations, and where it once rippled peacefully some of the richest veins in the district are now being worked. Kerr Lake, a short distance from the town, has also been drained to allow safer underground workings. The place reminds one of the mines of the Bay of Nagasaki, Japan, where coal has been taken out of fifty miles of tunnels under the Pacific Ocean. I have visited those tunnels, and have also ridden by electric car through the coal mines under the ocean off the coast of south Chile.

The discovery of silver at Cobalt marked the first finding in the Dominion of any precious metal in important quantities between the Atlantic Ocean and the Rocky Mountains. Two railway contractors, employed in the building of the line northward from the town of North Bay, were idly tossing pebbles into the lake when they found some that they believed to be lead. An analysis showed almost pure silver. Shortly afterward a French blacksmith named La Rose stubbed his toe upon a piece of rock where the railway route had been blasted out, and upon picking it up saw the white metal shining out of the blue stone. He conferred with his friends and sent it down to Toronto to be assayed. The report was that it was very rich in silver. La Rose thereupon filed a mining claim,

selling the first half of his property to the Timmins corporation for five hundred dollars. Later he disposed of the balance to the same parties, receiving for it twenty-seven thousand dollars, which seemed a fortune to him. It was also a fortune to the purchasers, who took out more than a million dollars' worth of pure silver.

Owing to the general tendency of the people to doubt the existence of precious metals in large quantities in Ontario, and the efforts of those who had made the "strike" to keep their discoveries secret, it was more than two years before excitement over the find reached a climax, and work on a large scale was begun. Since then these mines have produced nearly fourteen thousand tons of silver bullion, worth more than two hundred million dollars. Think what this means! Loaded into cars of thirty-five tons, the total output would fill sixteen trains of twenty-five cars to the train! Made into ten-cent pieces and laid side by side, it would make a band of solid silver twice around the world at the Equator! Manufactured into teaspoons, it would furnish one for every person in the United States, England, and France, with many to spare!

The height of the silver production at Cobalt was reached in 1911, when thirty-one million ounces of the metal was refined. Since then the yield has declined, but mining engineers say that the district will produce silver in commercial quantities for another half century. Eight mines are still each shipping a quarter million ounces or more of silver a year, and one of them, the Nipissing, is producing annually an average of four million ounces. Its huge mills, where the ore is crushed and the silver taken out, can be seen across the lake bed from the railway

station, with gigantic overhead conveyors carrying the rock from the mine to the mill. Silver is now being extracted in paying quantities from what was once considered waste ore, and the tailings previously dumped into the lakes have been treated in the mills, yielding a net profit of three dollars' worth of silver a ton. In the meantime, the original three-mile radius of the silver-producing area has been extended twenty miles to the southeast and sixty miles to the northwest.

The entire Cobalt region seems to be one vast rock covered with a thin skin of earth. I have visited the chief silver regions of the world, but nowhere have I seen the metal cropping out on top of the ground as it does here at Cobalt. The veins run for hundreds of feet across the country, and often show up on the surface. I saw one mine where the earth had been stripped off to the width of a narrow pavement for a distance of a thousand feet. The rock underneath, which had been ground smooth by glaciers, looked when cleaned much like a flagged sidewalk. Winding through it was a vein of almost pure silver, so rich that I could see the metal shine as though the rock were plated. I walked over this silver street for hundreds of feet, scouring the precious metal with my shoes as I did so. These veins are not regular in width nor do they run evenly throughout. Here and there branches jut out from the main one like the veins of a leaf, and the ore has everywhere penetrated into the adjoining rocks.

For a long time the work here was more like stone quarrying than mining. The country about is cut up by long trenches from ten to twenty feet deep and five or more feet in width, which have been blasted out of the rock to get the ore. The sides of the hills are now quarried where

the silver breaks out, and the veins are followed down into the ground for long distances. One mining company has sunk a shaft to a depth of four hundred and fifty feet, and has excavated about thirty-seven miles of tunnels. So far, no one knows how deep the veins go. The geologists say that the silver will lessen in extent as it descends, and it is claimed that this has been the case with many of the mines.

The discovery in 1923 of the largest silver nugget ever found renewed interest in the Cobalt deposits, and has led to the reopening of several old mines with profitable results. This gigantic find, which tipped the scales at more than two thousand pounds, was about ninety per cent. pure silver, and was valued at twenty thousand dollars. The discovery was made by Anson Clement, a carpenter, in the Gillies Timber Limit about five miles from Cobalt, and a team of horses with a block and tackle was needed to haul the giant nugget out of the ground. Nuggets of silver eighty and ninety per cent. pure and weighing three and four hundred pounds each are not uncommon, and I have seen chunks of silver ore the size of a paving brick that I could not lift. Indeed, much of the ore reminds one of the rich copper nuggets that are found in the Lake Superior region. Recently a vein of almost pure silver, which in one place was between four and five feet in width, was uncovered in the Keeley Mine, eighteen miles from Cobalt.

Before the discovery of the Cobalt deposits, British Columbia led in the production of silver in Canada, and still has an output about one third that of Ontario. Silver is mined also in Quebec and Yukon Territory, a new silver district of promise having been discovered at Keno Hill in the Yukon. Three thousand tons of ore has been taken

from one of the Keno Hill mines in one season. This has to be carried on dog sleds and wagons forty-five miles to the Stewart River and then sent down the Stewart and the Yukon to the Pacific, where it goes by ocean steamer to the nearest smelter. Only an unusually high grade of ore can be handled profitably with so long a freight haul before smelting.

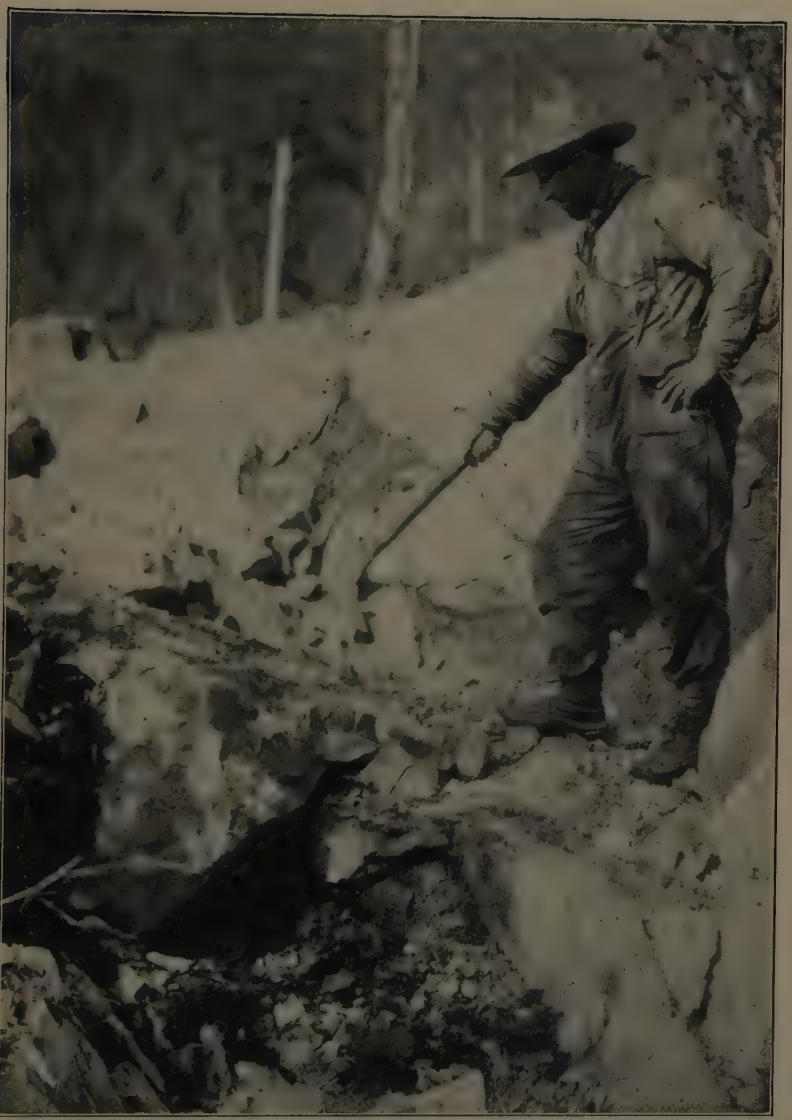
The Cobalt mines produce not only silver, but also four fifths of the world's supply of cobalt. Cobalt and silver are frequently found together, but nowhere in such quantities as here. Cobalt is a mineral somewhat like nickel in its properties, and is also used instead of nickel for plating steel. It is used to make paints and pigments, and is often known commercially as cobalt blue. Silicate of cobalt furnishes the colour for all the finest blue china. Practically the entire Canadian output, most of which is smelted at plants in southern Ontario, is exported to England and the United States.

The cobalt can be plainly seen in the ore when the rock is exposed to the weather. It is of a steel-gray colour tinged with rose-pink, and where it occurs in the form of a powder it looks exactly like rouge. When heated it turns a beautiful blue. Arsenic and other elements are often found mixed with the cobalt-silver ore, and the region has deposits of nickel, copper, and lead.

A hundred miles to the north of Cobalt is the Porcupine gold district. The gold output ranks first in value among the metals produced in Canada, and four fifths of all that is mined in the Dominion comes from the Porcupine and Kirkland Lake districts of Northern Ontario. The Hollinger mine in the Porcupine area is the largest gold mine in North America and one of the richest in the world.

It began operations in 1910, and within ten years after it was opened had produced almost a hundred million dollars' worth of gold, and had paid dividends of thirteen millions. The Hollinger shaft goes down into the earth fifteen hundred feet or more and there are about thirty miles of underground tunnels.

There is no telling what minerals may not be discovered in this section of Ontario, which seems to be a part of the great mineral belt that extends from Lake Superior northward toward Hudson Bay. There is iron on the Canadian side of Lake Superior, and some of our richest mines of iron and copper are found on the western and southern shores of that lake. Petroleum, natural gas, and salt are produced in the peninsular region of the province between lakes Huron, Erie, and Ontario to the amount of more than three million dollars' worth a year. About a hundred miles from Cobalt lies Sudbury, which has the richest nickel deposits of the whole world, and prospectors say that there are minerals all the way north to James Bay, which juts down into Canada at the lower end of Hudson Bay.



The silver deposits around Cobalt crop out on top of the ground in veins of almost pure metal hundreds of feet long. Millions of dollars' worth have been mined without any underground workings.

The prospector in northern Ontario, the richest mineral region in Canada, safeguards his claim by erecting "discovery posts" bearing his name, number of his mining license, and date of his find.

CHAPTER XVII

NICKEL FOR ALL THE WORLD

CANADA has a nickel mine out of which has been taken so much ore that if it were put all together the pile would be larger than the National Capital at Washington. About ten million tons have already been dug from it and there are still millions left. Indeed, it is apparently inexhaustible. It is known as the Creighton, and is situated about eight miles from Sudbury in the province of Ontario not far north of Georgian Bay. The International Nickel Company of Canada, Ltd., which owns it, is the largest nickel producer in the world, and supplies most of that metal used in the United States.

There are only two places so far discovered where nickel exists in large quantities. One is in the little island of New Caledonia off the eastern shore of Australia on the opposite side of the globe. About ten per cent. of the total world production comes from there. The other is here in Canada, in a region that yields eight times as much as New Caledonia. A small amount of nickel is obtained also by the electrolytic method in the refining of copper and other ores.

The ore near Sudbury is a combination of nickel, copper, sulphur, and iron. It is found in mighty beds or pockets going down no one knows how deep. On one side of the deposit is granite and on the other a black formation known as diorite.

At first the ore was quarried rather than mined, and a huge pit was formed that looks like a volcanic crater. It reminds me of the Bromo volcano, which I visited in the mountains of eastern Java. Later a shaft was sunk, and the vast body of nickel I have mentioned has been taken out by running tunnels into the ore at different levels. The lowest level of the shaft is now fourteen hundred feet below the earth's surface. There hundreds of workmen are drilling and blasting. They load the ore on cars, which carry it to an underground storage chamber, where the large pieces are crushed. It is then hoisted to the top of the shaft house, a structure as high as a fourteen-story building. After descending through rock crushers and screens, it is ready for smelting.

Through the kindness of one of the officials of the International Nickel Company, I have been able to go through its smelters at Copper Cliff, which cover many acres. The country about is as arid as the desert of Sahara. Before the mines were discovered, it was a green forest and one may still see here and there charred stumps standing out upon the barren landscape. In the town itself there is not a green leaf, a blade of grass, a bush, or a flower to be seen at any time of the year. It makes me think of the nitrate fields about Iquique in northern Chile, where all is sand and rock and there is no fresh water for hundreds of miles. All this is due to the sulphur that comes from the ore. It so fills the air about Copper Cliff that no vegetation will grow.

After being crushed and screened the ore is roasted. Hundreds of tons of it are piled upon beds of cord wood and the fine ore dust is spread over the top. A fire is started and burns day after day for a period of two months

or more. This drives out fifteen or twenty per cent. of the sulphur, which rises in a smoke of a light yellow colour. The smoke is almost pure sulphur. It smells like burnt matches and it fills the air about the furnace to such an extent that the men use rubber nose caps to protect their lungs from the fumes. These caps are for all the world like the nipples on babies' nursing bottles, save that they are as big as your fist, and each has a sponge inside it soaked with carbonate of ammonia. This counteracts the effect of the sulphur and makes it possible for the men to work. I had one of these nipples over my nose when I went through the works, but nevertheless my lungs became filled with sulphur. I coughed until the tears rolled down my cheeks, and as I did so I thought if some of our preachers could get such a taste of brimstone their word pictures of the lower regions would be more realistic.

One might suppose that the miners would be injured by these sulphur fumes. They are, on the contrary, as healthy as any people in the world. The children have rosy cheeks and the men are more rugged in appearance than those about Pittsburgh, or Anaconda, Montana.

Even after the roasting there is still about seven per cent. of sulphur left. Most of this is removed in the smelting, which reduces the ore to a crude metal known as matte. Matte is the form in which the nickel is sent to the refineries.

Formerly most of the refining was done in the United States or Europe, but during the World War the International Nickel Company built a refinery at Port Colborne, Ontario, and most of the Sudbury ore is now refined there. A large quantity goes also to Huntington, West Virginia, for making what is known as monel metal, an alloy of

nickel and copper that possesses great strength, does not corrode easily, and is impervious to electrical currents. It is used in hotel kitchen equipment, in dyeing and pickling vats, and in many kinds of electrical apparatus.

The mineral deposits of Sudbury were discovered by the Canadian Pacific Railway, which was responsible also for the finding of silver at Cobalt. However, no attention was paid to the nickel in the ore, which for years was considered valuable only for the copper it contained. Part of the ore was sent to New Jersey for smelting and refining, and part to Wales. The reduction works at New Jersey looked upon the nickel as of no account and let it run off with the slag, while the Wales smelters paid only for the copper and kept the nickel as a private rake-off. Later the mine owners discovered that the nickel was far more valuable than the copper, and since then nickel has been the principal source of profit.

Although the largest, the Creighton is by no means the only nickel mine here. The British American Nickel Company owns and operates the Murray mine, where nickel was first found in Canada. It formerly belonged to the Vivians of Wales. This company has a large smelting plant at Nickelton, not far from Sudbury, and a refinery at Deschennes, near Ottawa. A half dozen mines are owned by the Mond Nickel Company, which ships practically all its matte to Clydach, Wales, for refining. The copper in this matte is recovered as copper sulphate, which is exported largely to Italy and other grape-growing countries for spraying the vines. The matte exported by the Mond Company is shipped in oaken casks, which are refilled in Wales with the copper sulphate and sent to Italy. The Italian peasants insist

on the chemical being received in such containers, not only to keep the sulphate crystals unbroken, but also because after emptying, they saw the casks in two and use them as washtubs.

The production of nickel reached its height in 1918, when five thousand tons of ore a day were mined. This was due to the many uses of the metal in the World War. After the Armistice, the nickel market was so over-stocked that a severe slump in prices occurred, and the nickel production fell from forty-six thousand tons in 1918 to eight thousand tons in 1922. There were large quantities of the metal in all the belligerent countries, and these had to be absorbed before the Canadian industry could return to normal. The end of 1922 found a more active demand, and this was followed by an increase in production and sales.

During my stay at Copper Cliff I have had a talk about nickel and its uses with one of the metallurgists of the International Nickel Company. This man has been working successfully in nickel for thirty years or more, and he knows as much about the metal, perhaps, as any one in the country. Among the first discoverers of nickel, says he, were the German miners of old, who found this metal in their copper ore. Its hardness and the difficulty they experienced in smelting it led them to associate it with "Old Nick"—hence its name. This hardness is one of the most valuable characteristics in its present-day uses.

"Most of the nickel goes into nickel-steel," said the metallurgist, "although it enters also into many other manufactures. The value of nickel-steel is due to the fact that it combines exceeding toughness with great strength. Copper wire has great toughness. A steel needle or pen-

knife has great strength. But it is only nickel-steel that has both toughness and strength. This makes it the best metal we know for armour plate. A battleship with a hull covered with steel or iron would be shattered to pieces if it were hit by one of the modern shells. If the armour plate is made of nickel-steel, the largest projectile makes only a dimple, such as you would in a pat of butter by sticking your finger into it. This property of toughness is added to the steel by putting in three and one half per cent. of nickel during the process of manufacturing. All the big warships of to-day have a belt of nickel-steel armour plate about eighteen inches thick. Nickel is also alloyed with copper for making army field kitchens and bullet casings."

Nickel-steel rails are used largely where there are curves at the bottom of steep grades. When a heavily loaded freight train strikes such a curve, the only things that hold it on the track are the flanges of the wheels and the heads of the rails. In winter the rails are apt to become brittle, and when a heavy train, rushing down hill, strikes them they sometimes break and there is a wreck. The Horseshoe Curve of the Pennsylvania Railroad, for instance, is made of nickel-steel rails.

The metal is employed also in bridge building. It is going into many of our large apartment houses and other tall buildings. It is fifty per cent. stronger than ordinary steel and the result is that less metal can be used, or with an equal weight the building can have double the strength. Nickel-steel does not expand or contract as much as common steel, and for this reason it is made into clock pendulums, which must be of the same length the year round in order to keep the right time. As nickel does not rust in air or water, and resists the action of many acids, it is

much used in plating other metals. It is in demand for cooking utensils, household articles, and plumbing equipment, as well as for automobile parts. Practically all the nickel contained in our five-cent pieces is from the Canadian mines. They are only one quarter nickel, however, the remainder being copper. Indeed, there is but a fraction of a cent's worth of nickel in a five-cent piece. A few countries, however, use pure nickel for their coinage.

Do you know that nickel-steel and meteorites have practically the same composition? Indeed, the process for making nickel-steel was suggested by a meteor found in Greenland. This meteor was an immense mass that had fallen from the skies ages ago and was venerated by the Greenlanders as a god. The natives were wont to hammer splinters from it and make them into spear heads and hammer heads, accompanying their work by prayers to the god. Explorers found that such spear heads were harder and finer than any others. An Englishman named Riley heard of these discoveries, and they gave him the idea that ended in the new metal.

CHAPTER XVIII

SAULT STE. MARIE AND THE CLAY BELT

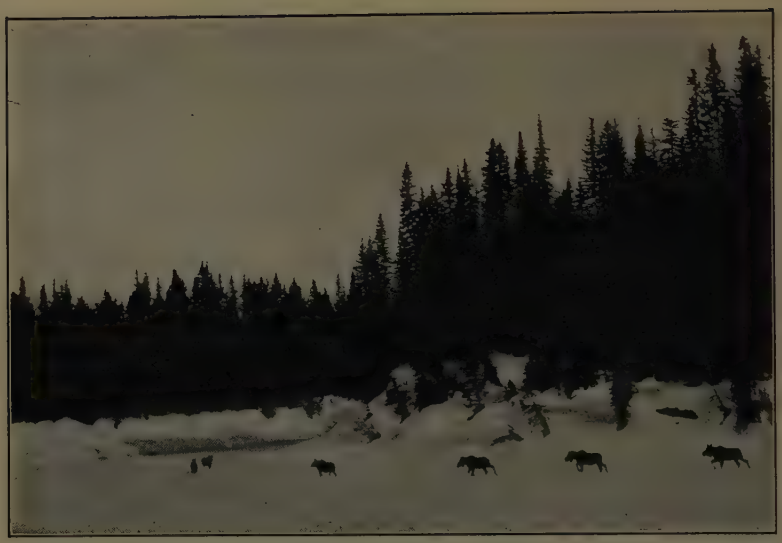
I AM at the "Soo," where Lake Superior, the world's largest body of fresh water, has been harnessed and is being made to work with a force of sixty thousand horses all pulling at once. The St. Mary's River, through which Lake Superior empties into Lake Huron, has a fall of about twenty-two feet in one mile, and power plants have been installed which are generating electricity for industries on both the American and Canadian sides of the river.

A large number of the industrial plants here belong to Americans. The main buildings of these works look like mediæval castles rather than modern factories. They are equal in beauty to any of the ruins of the Rhine or the Danube. Indeed, they remind me of the mighty forts of Delhi, the capital of India. They are made of a rich red and white sandstone, with crenellated walls, and, notwithstanding their beauty, are said to have been built at a remarkably low cost. The blocks of sandstone were taken out of the canal dug for the power plant.

It is interesting to go through these factories and see the work of Lake Superior in harness. In the pulp mills, where more than a hundred huge truck loads of news-print are turned out every day, I saw the logs ground to dust, mixed with water, and made into miles of paper to feed printing presses. The output is so great that every three

The "Soo" Canal not only has the heaviest freight traffic of any artificial waterway in the world, but is also on the route of the passenger steamers that carry thousands of tourists through the Great Lakes.

The longest bascule bridge in the world is operated by the Canadian Pacific Railway at Sault Ste. Marie. Each section is 169 feet long, and is raised by electric power to permit vessels to pass through the canal.



The moose in the thick forests of Canada feed off the trees and smaller shrubs. The moose have such short necks and long front legs that they cannot browse on grass without getting down on their knees.

Ontario has so many lakes that canoes can be paddled for hundreds of miles with practically no portages. Since the days of the French explorers, these lakes have formed part of the water route from the East to Hudson Bay.

months enough paper is made to cover a sidewalk reaching all the way round the world.

In the saw-mills millions of feet of lumber are being cut into boards for the markets of the United States, and in the veneering works birch logs as big around as a flour barrel are made into sheets, some as thin as your fingernail, and others as thick as the board cover of a family Bible. Here we see that the logs are soaked in boiling water and then pared, just as you would pare an apple, into strips of wood carpeting perhaps a hundred feet long. These strips are used for the backing of mahogany and quartered oak sent here from Grand Rapids and other places where furniture is made. One often thinks he is getting solid mahogany or solid oak, whereas he has only the knottiest of pine or other rough wood on which is placed a strip of birch, with a veneer of mahogany or oak on top. The thick birch strips are used also for chair and opera seats.

Near the saw-mills is the Clergue steel plant, with its smoke stacks standing out against the blue sky like the pipes of a gigantic organ. The works cover acres and turn out thousands of tons of metal products every day. They are supplied by the mountains of iron ore lying on the shores of Lake Superior not far away, with great steel unloaders reaching out above them.

Sault Ste. Marie is one of the oldest settlements in the Dominion of Canada. Here in 1668, Father Marquette established the first Jesuit mission in the New World, and the priests who followed him were the first white men to travel from lower Canada to the head of the Great Lakes, where now stand Port Arthur and Fort William. The town of to-day is a bustling place of almost twenty-five thousand population. It is connected with its American

namesake on the opposite bank of the river by a mile-long bridge of the Canadian Pacific Railway.

On both sides of the Saint Mary's River are the locks of the famous "Soo" Canal, where the Great Lakes freighters and passenger boats are lowered and raised twenty feet between the levels of Lakes Superior and Huron. The first canal was built around the rapids in 1798, to accommodate the canoes of the Indians and fur traders. Along it ran a tow-path for the oxen that later pulled the heavier loads. That canal was destroyed by the United States troops in the War of 1812.

The present canal was opened in 1897, providing a new link in the chain of waterways from the head of the Lakes to the Saint Lawrence. The Canadian lock is nine hundred feet long and when finished was the longest in the world. Since then it has been surpassed by one eleven hundred feet in length on the American side. The United States locks handle about ninety per cent. of the freight traffic, which has so increased in the last twenty years that it has been necessary to add three more locks to the original one on our side of the river. Two of these locks are longer by three hundred feet than the famous Panama locks at Gatun or Pedro Miguel. Each is big enough to accommodate two ships at one time. Nevertheless, during the open season one can often see here a score of steamers, some of them of from twelve to fifteen thousand tons, waiting to go through.

The "Soo" is noted for having the heaviest freight traffic of any artificial waterway in the world. The tonnage passing through it in one year is three times as large as that of the foreign trade shipping of the port of New York, four times as great as the freight passing through

the Suez Canal, and five times as great as that of the Panama Canal. For six months of the year an average of more than one steamer goes through every fifteen minutes. The chief freight commodity is ore from the iron mines of Lake Superior, which often comprises seventy per cent. of the total. Coal and wheat are next in importance.

In coming to the "Soo" from Cobalt and Sudbury, I have been travelling through the new Ontario, the "wild northwest" of the Ontario we know on the shores of Lakes Ontario, Erie, and Huron. The land near those bodies of water is about as thickly settled as Ohio. It has some of the best farms of North America, producing grain, vegetables, and fruits worth millions of dollars a year. At every few miles are modern cities. The whole country is cut up by railways, and one can go by automobile through any part of it. The cities and town hum with factories, and the entire region is one of industry and thrift.

This new Ontario is the frontier of the province. It is the great northland between Georgian Bay and Hudson Bay, extending from Quebec westward through the Rainy River country to Manitoba. This vast region is larger than Texas, four times the size of old Ontario, and much bigger than Great Britain or France. It is divided into eight great districts. The Thunder Bay and Rainy River districts in the west are together as long as from Philadelphia to Boston, and wider than from Washington to New York. The Algoma district, in the southern end of which the "Soo" is located, is almost as wide, extending from Lake Superior to the Albany River, while the Timiskaming district reaches from Cobalt north to James Bay, and borders Quebec on the east.

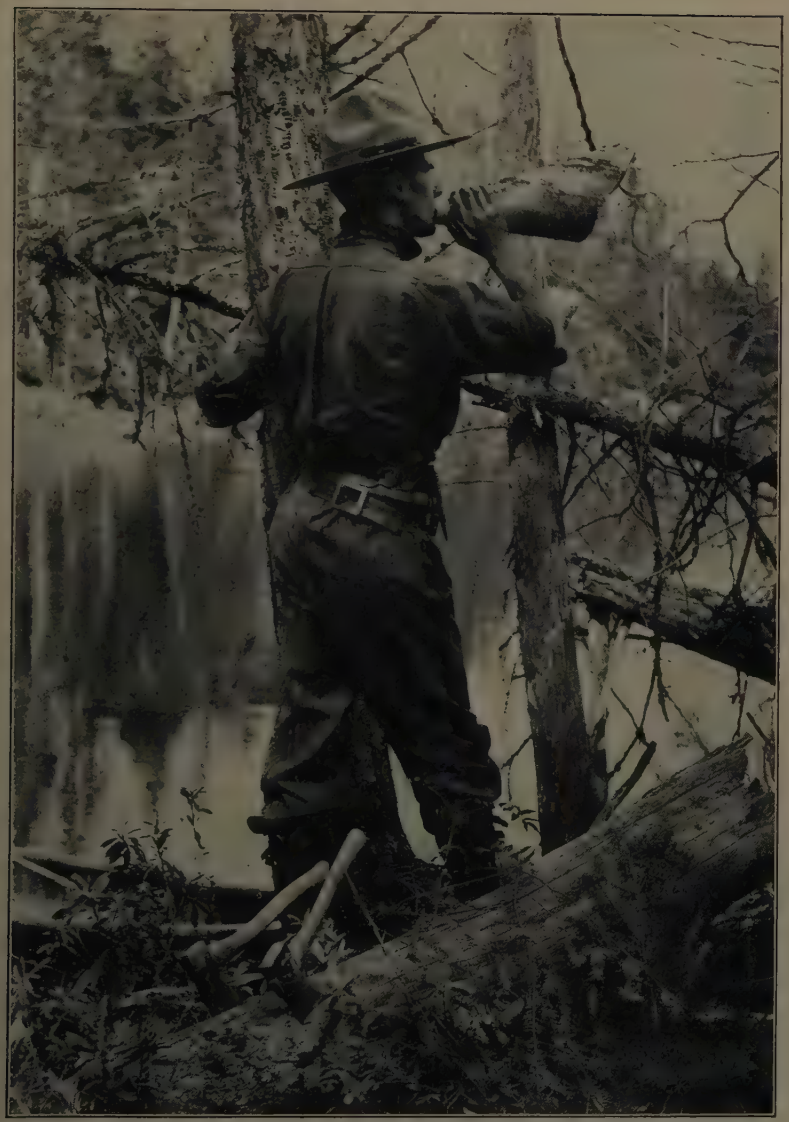
Until the first decade of the twentieth century this vast

territory was looked upon as valuable only for its timber, of which it had nearly two hundred million acres. It was thought to be nothing but rock and swamp, covered with ice the greater part of the year. Its only inhabitants were Indian hunters, Hudson's Bay Company fur traders, and lumbermen who cut the trees along the streams and floated them down to the Great Lakes. Then a new line of the Canadian Pacific Railway was put through, the great nickel mines were discovered, the silver and gold regions were opened up, and the Dominion and provincial governments began to look upon the land as an available asset.

Exploration parties were sent out by the Ontario government to investigate the region from Quebec to Manitoba. They reported that a wide strip of fertile soil ran through the wilderness about a hundred miles north of the route of the Canadian Pacific Railway. This land is of a different formation from the rest of northern Ontario. It is a clay loam, from which the region gets its name, the Great Clay Belt. This belt is from twenty-five to one hundred miles wide, and it extends westward from the Quebec-Ontario boundary for three hundred miles or more. It is estimated to contain as much land as West Virginia.

The Clay Belt is just north of the height of land of the North American continent, which divides the rivers flowing north from those that flow south. The streams on the southern side of the ridge flow into the Great Lakes, and some even to the Gulf of Mexico. On the north slope they flow into Hudson Bay, or by the Mackenzie and other rivers into the Arctic Ocean. The Clay Belt has seven good-sized rivers and is well watered throughout.

In midsummer the Clay Belt is as hot as southern Canada or the northern part of the United States. As a mat-



If there is a moose within sound of the hunter's birch-bark horn, he will think it one of his brethren calling and be so foolish as to come near and be shot. These animals are still plentiful in Canadian forests.

The trout-filled streams of interior Ontario and Quebec are a Mecca for the fishermen of both the United States and Canada. In the tributaries of the St. Lawrence the fresh-water salmon also provide good sport.

ter of fact, Cochrane, its chief town, is fifty miles south of the latitude of Winnipeg. Everything grows faster than in the States, for owing to the high latitude the summer days are fifteen or sixteen hours long, the sun rising a little after three and setting between eight and nine. The clay loam is particularly fitted for growing wheat, and certain districts have yielded forty bushels an acre. Oats, barley, and hardy vegetables are raised successfully. The country looks prosperous, and there are well-filled barns and fine herds of livestock as evidences of its productivity.

When the first settlements were made, Northern Ontario had no railroads to market its produce. Four thousand miles of track have since been built, including two lines now a part of the Canadian National. One of these goes through the very centre of the Clay Belt and has settlements all along it. At almost every river crossing is a lumber mill, for Northern Ontario's vast forest stretches and the water-power in its streams have made it an important producer of lumber and wood pulp. The trees of the Clay Belt are mostly of a small growth, therefore chiefly valuable for pulp and easier to handle in clearing the land.

Ontario has set aside thirteen million acres of forest reserves, nine tenths of which is in the northern part of the province. The Nipigon and Timagami reserves are each larger than Rhode Island and provide camping grounds unequalled in the Dominion. Lake Timagami is dotted with hundreds of islands and is a favourite haunt of canoeists. Farther west, near the Manitoba boundary, the beautiful Lake of the Woods is another famous camping and hunting district.

Immense herds of caribou roam through Northern

Ontario. They are to be seen in droves of hundreds and sometimes of thousands. They have cut their trails across the country, and a hunter to whom I have been talking tells me that from his camp at night he can often hear the rushing noise they make as they move through the woods.

In the forests farther south moose are found in great numbers. These animals are browsers rather than grass eaters, their necks being so short that they have to get down on their knees when they eat grass. Deer and smaller animals also abound, wild ducks and geese are plentiful, and the streams are filled with fish. Indeed, it is little wonder that each year sees thousands of campers making their way to this "sportsman's paradise."

CHAPTER XIX

THE TWIN LAKE PORTS

I AM at the nozzle of the mighty grain funnel down which Canada's wheat crop is pouring into the boats of Lake Superior. The prairie provinces of the Dominion produce in one year almost a half billion bushels of wheat, and after the harvest a steady stream of golden grain rolls into the huge elevators of Port Arthur and Fort William, its sister city, three miles away.

These cities are on the north shore of Lake Superior, two or three hundred miles from Duluth, and within four hundred miles of Winnipeg. Port Arthur is situated on Thunder Bay, opposite the rocky promontory of Thunder Cape, and Fort William is a short distance farther inland at the mouth of the Kaministiquia River. Both towns have harbours deep enough for the largest lake steamers, and during eight months of the year a great caravan of boats is moving back and forth between here and the East. By the Canadian Pacific and the Canadian National railways, Port Arthur and Fort William have connection with every part of the wheat belt, and almost the entire amount of wheat exported, or about seventy per cent. of the total production, is brought here for storage and transportation.

The two cities are so full of the spirit of the breezy West that one feels it in the air. The region is in step

with twentieth-century progress. The people look at the future through the right end of the telescope, and most of them have microscopes in front of the lenses. Everyone is building air castles—not in Spain, but upon Lake Superior—and although he acknowledges that he has not yet got far beyond the foundations, he can in his mind's eye see cities far surpassing those of the present.

Speaking of the enthusiasm of the Port Arthurites—the night I arrived I walked up the street and entered a stationery store. While making a purchase I happened to remark that the town was beautifully located.

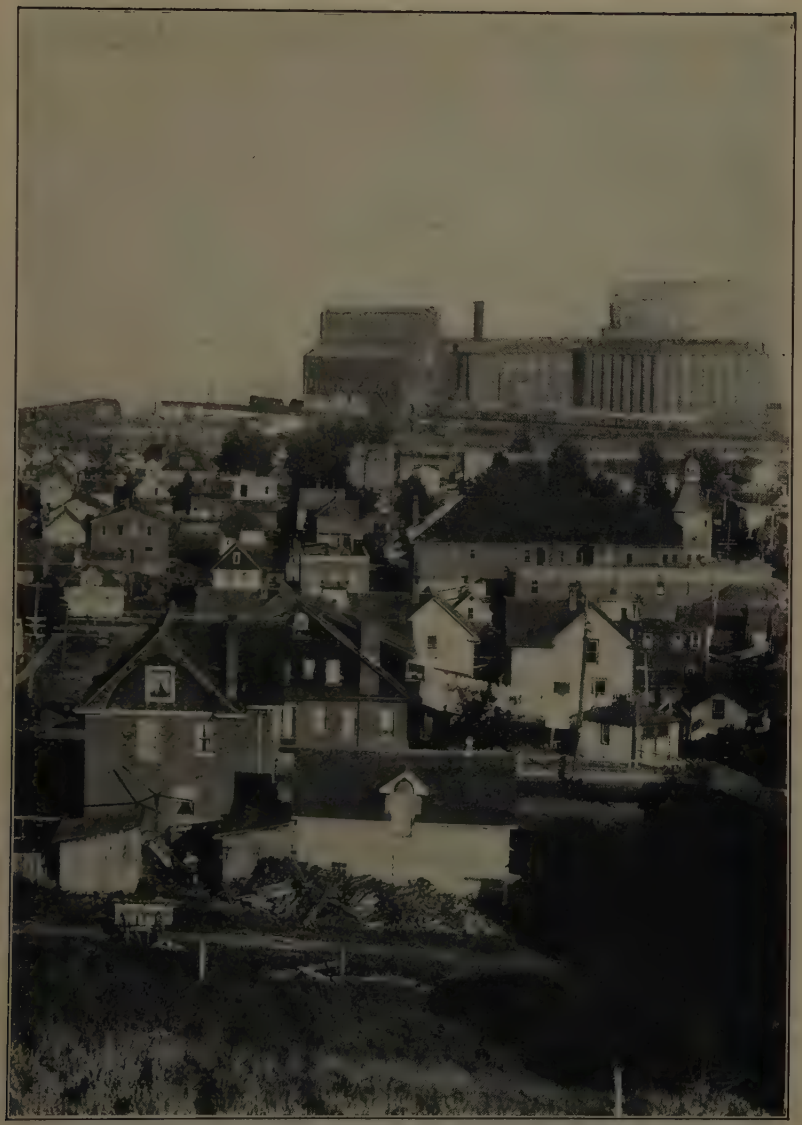
"It is," said the clerk, "and if you will come with me I will show you one of the finest views in the world just behind this store."

Supposing it to be a walk of a minute or so, I consented. The clerk grabbed his hat and out we went. He tramped me two miles up the hills back of Port Arthur, leading me on and on through one district after another, until I wondered whether I was in the hands of a gold brick agent or some other confidence man. At last, when we were out among the real estate signs, he struck an attitude and exclaimed:

"Behold Port Arthur."

It was moonlight and I could see the ghost-like buildings scattered over the hills, while down on the shore of the lake was the skyline of the business section with the mighty elevators on the edge of the water beyond. It was a fine moonlight view of Thunder Bay, but being tired out after my trip from the "Soo," I was not enthusiastic.

Fort William and Port Arthur are rivals. Port Arthur was built first. Formerly the site of an Indian village, it



The government-owned wheat elevator at Port Arthur is the world's largest grain storage plant. The greater part of all the wheat grown on the western prairies comes to this city or to Fort William for shipment down the lakes.

The beautiful falls of Kakabeka are almost as high as those of Niagara. They generate hydro-electric power that is carried to Fort William, twenty-three miles away, to light the city and run its factories.

"The lake freighters are like no other craft I have ever seen. Between the bow and the stern is a vast stretch of deck, containing hatches into which wheat or ore is loaded. This boat is six hundred feet long."

was founded by the Canadian Pacific Railway. Shortly after its birth the baby town decided to tax that great corporation. This made the railway people angry, and it is said that the then president of the line decided to discipline the infant by moving his lake terminus to Fort William, which was then a Hudson's Bay Company trading post. He thereupon shifted the railway shops to Fort William, saying that he would yet see the grass grow in the streets of Port Arthur. For a time the grass did grow, but later the Canadian Northern road, now a part of the Canadian National, was built through, and Port Arthur now has traffic from both roads. Most of the business of the Canadian Pacific is still done at Fort William.

Fort William and Port Arthur are connected by a street-car line and the land between them has been so divided into town lots that they may some day unite the two cities. Both places believe in municipal ownership, and each manages its own electric lights, telephones, and waterworks. Fort William is the larger, Port Arthur having four or five thousand less people.

During my stay here I have gone through some of the wheat elevators. Fort William has twenty-two and Port Arthur ten, with a total storage capacity between them of fifty-six million bushels. Plans are under way to make this enormous capacity even greater. The terminal elevator of the Canadian National Railways, built on the very edge of Lake Superior, is the largest in the world. It consists of two huge barn-like divisions between which are more than one hundred and fifty herculean grain tanks. These are mighty cylinders of tiles bound together with steel, each of which is twenty-one feet in diameter and will hold twenty-three thousand bushels of wheat.

This great tank forest covers several acres, and rises to the height of an eight-story apartment house.

The storage capacity of the elevator is eight million bushels of wheat, which is more than enough to supply a city the size of Detroit with flour the year round. The elevator can unload six hundred cars of wheat, or about six hundred thousand bushels, in a single day, including the weighing and binning. It has scales that weigh forty-three tons at a time.

The wheat comes to the elevator in cars, each of which holds a thousand or fifteen hundred bushels. By a car-dumping machine the grain is unloaded into the basement of the huge buildings at the sides of the tanks. From there it is raised to the top of the elevator in bushel buckets on endless chains at the rate of six hundred and fifty bushels a minute, or more than ten every second. It is next weighed, and then carried on wide belt conveyors into the storage towers. The machinery is so arranged that by pressing a button or moving a lever a stream of wheat will flow to any part of the great granary. The grain runs just like water, save that the belts conduct it uphill or down.

When ready to be transferred to a steamer, the wheat is drawn from the bottom of a bin, again elevated to the top of the building, weighed, and then poured into the vessel through spouts. It is not touched by hand from the time it leaves the car until it is taken from the hold of the ship, and the work is done so cheaply that it costs only a fraction of a cent to transfer a bushel of wheat from the car to the boats. For ten or eleven cents a bushel it can be carried a thousand miles or more down the lakes and put into the hold of an ocean steamer that takes it to Europe.

In one of the elevators of the Canadian Pacific Railway at Fort William a train of wheat is handled every twenty minutes during the season. I timed the workers as they unloaded one car. It contained sixteen hundred bushels of wheat, or enough, at twenty-five bushels an acre, to equal the crop of a sixty-four acre farm. Nevertheless, it was elevated, weighed, and put in the tanks within less than eight minutes.

The open navigation season on the Great Lakes lasts from May to December, and during this time as much as five million bushels of wheat a day have been put on freight boats at Fort William or Port Arthur for transshipment to the East. Some of the freighters unload their cargoes at Georgian Bay ports, on the east side of Lake Huron, from where the wheat goes by rail to Montreal. Other ships discharge at Port Colborne, Ontario, from where the grain is carried on barges through the Welland Canal and thence down the St. Lawrence and its canals to Montreal. Still other shipments go through United States ports. A few small steamers take their cargoes all the way by water from the head of the Lakes to Montreal; the grain carried in this way is only between two and three per cent. of the total.

The all-water route and the combined rail-and-water route from the head of the Lakes to the Atlantic seaboard are much cheaper than the all-rail route, due to high railway freight rates in eastern Canada. A bushel of wheat can be sent over the thirteen hundred miles between Calgary and Fort William for about fifteen cents, while the overland freight rate from Fort William to Quebec or Montreal, a distance of only a thousand miles, is twenty-one cents. The rate on the all-water route from Fort

William to Montreal is ten cents cheaper, or eleven cents. From Fort William to New York via Buffalo it is fourteen cents, but vessels sailing from New York offer lower ocean rates and can get cheaper marine insurance, so that more than half of Canada's export wheat is shipped abroad via the United States.

Whenever we have put a high tariff on Canadian wheat, the amount exported to our country declines. We now admit Canadian wheat free of duty on condition that none shall be consumed in the United States. This does not mean that it may not be manufactured. At present fifty per cent. of all that is imported is made into flour, and then reëxported.

Some of the lake freighters in the Port Arthur and Fort William harbours are like no other craft I have seen. They have an elevated forecastle at the bow for the crew, with the engines and officers' quarters in the stern. In rough weather one can pass from bow to stern only by means of a life rope, and orders and reports are given by telephone. In the stretch of deck between is a series of hatches, sometimes thirty or more, through which the cargoes are loaded or discharged. A single vessel will often carry three hundred thousand bushels of wheat, or the equivalent of six or seven trainloads of forty cars each. Among the boats in the lake grain trade this season were a number of small ocean-going freighters from Norway, attracted here by the cargoes available at profitable rates.

Besides the great fleet of grain-carrying ships, passenger steamers run from Port Arthur and Fort William to Georgian Bay, touching at all the important ports on the route. I steamed for eighteen hours through Lake Superior coming here on one of the boats from the "Soo."

That lake is so large that at times we lost sight of land and it seemed as though we were in mid-ocean. At other times we could see the irregular coastline, which is rock-bound and picturesque. The water of Lake Superior is as clear as crystal; it is icy cold the year round.

CHAPTER XX

WINNIPEG—WHERE THE PRAIRIES BEGIN

STAND with me on the top of the Union Bank Building, and take a look at the city of Winnipeg. You had best pull your hat down over your ears and button your fur coat up to your neck for the wind is blowing a gale. The sky is bright, and the air is sharp and so full of ozone that we seem to be breathing champagne. I venture you have never felt so much alive.

The city stretches out on all sides for miles. Office buildings and stores are going up, new shingle roofs shine brightly under the winter sun, and we can almost smell the paint of the suburban additions. Within fifty years Winnipeg has jumped from a Hudson's Bay Company trading post of two hundred people to a city of more than two hundred thousand, and it is still growing. The value of the buildings erected last year amounted to more than half that of the new construction in Montreal.

Now turn about and look up Portage Avenue. Twenty years ago that street hardly existed. To-day it has millions of dollars' worth of business blocks, any of which would be a credit to a city the same size in the States. That nine-story department store over there is the largest in western Canada. Farther down Main Street are the Canadian Pacific hotel and railway offices, and beyond them the great terminals of the Canadian National Railways.

"Yes, sir," says the Winnipegger at my side, "you

can see how we have grown. It was about the beginning of this century that we began to build for all time and eternity. Before that most of our buildings were put up without cellars and had flimsy foundations. We had not realized that Winnipeg was bound to be the greatest city of Central Canada.

"Look at those wholesale houses," he continues. "Did you ever see anything like them? Most of them started as two- or three-story structures, but their business has grown so that they have had to be pushed up to six stories or more. Winnipeg is one of the chief markets of western North America. If you had a pair of long-distance glasses that would enable you to look from here to the Pacific you could find no city in western Canada that can approach it, and your eyes would travel as far as Toronto before any city of its size could be seen.

"If it were now summer," the Winnipegger continues, "your telescope would show you that you are at the eastern end of the greatest grain-growing region on earth. To the west of us are six million acres of land that will grow wheat and other foodstuffs with little more labour than scratching the ground. Western Canada raised in one year almost a half billion bushels of wheat and almost as much oats, to say nothing of millions of bushels of barley, rye, and flax seed."

"Don't you think it is a bit cold here on the roof?" I rather timidly manage to ask.

"Well, perhaps so," is the reply, "but when I talk about Winnipeg I grow so warm that I could stand stark naked on the North Pole and not feel uncomfortable."

Leaving the Union Bank Building, we go for a motor ride through the city. Main Street, the chief business

thoroughfare, was one of the old Indian trails that followed the course of the Red River past the old Hudson's Bay Company fort. And it still contains some of the city's best commercial properties. Along it real estate has been rapidly rising in price and is said to be now fully as high as in Minneapolis or Toronto. Portage Avenue, which we saw from the roof, cuts Main Street almost at right angles. It also is part of an old Indian trail that extended from here a thousand miles westward to Edmonton, a city now reached by three great railroad lines.

Notice the banks! Winnipeg is one of the financial centres of Canada, with branches of the chief banks of the Dominion. Now we are going toward the river, past the Hudson's Bay Company stores. Turning to the right, we pass the Manitoba Club, the University of Manitoba, and the parliament buildings. Like Washington, Winnipeg is a city of magnificent distances. The main streets are one hundred and thirty-two feet wide, and they stretch on and on out into the country. In the residential districts they wind this way and that along the Assiniboine River. Boulevards have been laid out on both sides of the stream in such a way that every residence has a back yard running down to the water, and nearly all have gardens and trees. There are miles of fine houses in this part of Winnipeg. The chief building materials are white brick and a cream-coloured stone found near by. This is, in fact, a white city, and it looks as neat as a pin under the bright sunshine. The boosting Winnipeggers say the sun shines here for thirteen months or more every year. It is true that of the three hundred and sixty-five days of the year, three hundred and thirty are usually cloudless.

Leaving the boulevards, we ride through street after

Winnipeg grew within fifty years from a Hudson's Bay post of two hundred people to the third largest city in the Dominion. It is the greatest grain market in Canada, all eastward-bound wheat being inspected and graded here.

Corn is cut by machinery in southern Manitoba. The land is worked in such large tracts that it pays to use the most modern labour-saving devices.

Wheat growers on a large scale usually have their own threshing machines, but the small farmer must stack his grain and wait for the arrival of one of the threshing outfits that travel from farm to farm through the wheat belt.

street of cottages, the homes of the well-to-do and of the poorer classes. We see but few signs of "To Let" or "For Sale." Winnipeg has almost no tenement buildings. Even the dwellings of the labourers stand in yards. Notice the double windows used to keep out the intense cold.

Winnipeg lies on a plain about midway between the Atlantic and the Pacific and sixty miles from the United States boundary. The city is built on the banks of the Assiniboine and the Red River of the North, which here come together. The confluence of the two rivers was the site of numerous Indian camps and trading posts, and the scene of many of the early struggles between the rival fur companies. Fort Garry was finally established here in 1820 by the Hudson's Bay Company, and a settlement that sprang up a half mile away was called Winnipeg, after the lake of the same name about fifty miles to the north. The word is a contraction of the Cree Indian "Ouinipigon," meaning "muddy waters."

In 1870, at the time of the Red River Rebellion against the creation of Manitoba as a province of the Dominion and its occupation by the Dominion government, Winnipeg, including Fort Garry, had two hundred and forty inhabitants. Ten years later its population was seven thousand, and in another ten years, following the coming of the Canadian Pacific Railway, it had about thirty thousand people. Since then it has grown steadily, until it is now the third city in Canada, outranked only by Montreal and Toronto. It is an important industrial centre, manufacturing more than one hundred million dollars worth of goods in one year.

Situated at the gateway of Western Canada, and the vast wheatfields of Manitoba, Saskatchewan, and Al-

berta, Winnipeg is the largest grain market not only of the Dominion but of the whole British Empire. It is the neck of the bottle, as it were, for practically the entire crop of the prairie provinces. Every carload of wheat bound eastward for Fort William or Port Arthur is opened here and sampled to determine its grade, a report on which is sent on to the elevator as soon as the car is reclosed and sealed. Hence, when the carload of wheat arrives at the elevator it can be binned in its proper place without any delay.

Winnipeg is the distributing point for western Canada for immigrants and settlers. There are people here of almost every nationality in Christendom, and I am told that the Bible is circulated through a local society in fifty different languages and dialects. Across the Red River from the city is the town of St. Boniface, where live several thousand French Canadians whose fathers came here years ago. For a long time the settlement was typically and wholly French, but many new people have come in, and not long since, for the first time in its history, an English-speaking mayor was elected.

Some distance from the city, on the south shore of Lake Winnipeg, is a colony of Icelanders. These people were among the first of the immigrants to western Canada. They were brought in by commissioners of the Dominion government when it was thought that none but those accustomed to the cold of the arctic region could withstand the climate. A colony of several thousand was settled along the shores of the lake. For a time they made their living by fishing, much of their catch in the winter being taken through holes in the ice. The Icelanders intermarried with the Canadians, and they are now well

scattered over the province. Some of them are lawyers, others are teachers, and many of the girls have gone into domestic service. The largest Icelandic church in the world is in Winnipeg, and periodicals are published here in the Icelandic language.

Winnipeg has many Mennonites and Russians. I saw a Russian church in my drive about the city. The Catholic population is large, the French Canadians belonging to that denomination. Outside the city are a Trappist monastery and a Trappist nunnery. Almost every denomination of Protestants has its meeting house, and the Jews have a synagogue.

I like the Winnipeggers. They are strenuous, enthusiastic, and happy. They are "boosters," claiming that their city has the best climate on earth, and that they would not exchange the biting winter winds of the prairie for the gentle zephyrs of Florida or California. Just now every one who can afford it wears a fur overcoat, many of which are made of coon skins. The fur of the coon is long and thick and the coat almost doubles the size of the wearer. It makes him look at least a foot broader. Some of the fur caps add six inches in height. Indeed, the town seems peopled with furry giants, who just now are breathing out steam, for the frost congeals the air from their nostrils so that it rises like the vapour of an incipient volcano.

The women here also dress in furs. Their cheeks are red from Jack Frost's nipping cold, and the ozone in the air paints their eyes bright. When they begin to talk one knows at once that they are the wives and the daughters of the giants beside them, for they sing the praises of Winnipeg as loud as the men.

Until 1912 Manitoba contained only half as much land as it does to-day. It was almost a perfect square and was known as the "Postage Stamp" province. Then a section of the Northwest Territories was added to it, and now it is as large as North Dakota, South Dakota, Missouri, and Indiana combined. From the Lake of the Woods and the Ontario boundary it extends westward to Saskatchewan, while from the boundary of North Dakota and Minnesota it stretches northward for a distance almost as long as from New York to Chicago.

Although known as a prairie province, as a matter of fact, only five per cent. of Manitoba is rightly included under this designation. This is in the southern part, where the fertile Red River Valley grows some of the finest wheat of all Canada. Three fourths of the province is covered with forest, mostly second growth, which has sprung up since the great forest fires in the past swept over the country. In the north are also vast regions of barren land and muskeg, whose only value is in their game and fish. Near The Pas, four hundred and eighty-three miles north of Winnipeg, is a region of minerals, where deposits of copper, gold, and silver are known to exist, but where the developments as yet are of no great importance.

About five hundred miles north of Winnipeg is a belt of clay land similar to that I have described in Ontario. This belt is level and well adapted to mixed farming. The Winnipeggers tell me that the railway built toward Hudson Bay has done much to open that part of Manitoba to settlement. The climate is said to be warmer than that of Winnipeg, owing to the absence of windswept plains and the proximity of the waters of Hudson Bay, which have a temperature higher than those of Lake Superior.

Hardy grains and vegetables can be grown, and strawberries have been raised at The Pas.

The first charter to build a railway to Hudson Bay was granted as far back as 1880, and the project has been under discussion more or less ever since. The various Canadian trunk lines at different times have made plans for extensions to the Bay, and I am told that James J. Hill once owned a concession to build such a line. The railway from Winnipeg to The Pas on the Saskatchewan River was completed about 1906, and from there it was planned to extend it on to Hudson Bay. Actual work was held up a long time because of a controversy as to whether the northern terminus should be at Port Nelson or farther north at Fort Churchill. Port Nelson was finally decided upon in 1912 and work was resumed.

As there were no settlements along the route, and as the builders had to carry with them all their supplies and food, the line was pushed northward a short distance at a time, and progress was slow. The plans included a harbour at Port Nelson and the erection there of two four-million bushel wheat elevators. However, the ships loaded with supplies for the new port met with disaster, and later it was learned that the entire appropriation for the railway had been spent leaving the line far from completion. The project was finally abandoned in 1917, when three hundred and thirty-two of the four hundred and twenty-four miles from The Pas to Port Nelson had been built. An irregular service has been since maintained to Mile 214, mostly for the accommodation of miners and hunters.

The Hudson Bay route would bring the wheat of the Northwest a thousand miles nearer the ocean. Port Nelson is as near Liverpool as is Montreal, and a carload of

wheat from Regina in Saskatchewan could be at the Hudson Bay port in the same time it would take to reach Fort William. The distance from Winnipeg to Liverpool via Hudson Bay is three thousand miles, whereas by Montreal it is 4228 miles. Passengers to England from St. Paul and Minneapolis by using this route would shorten their railroad journey by at least five or six hundred miles.

The chief objection to the completion of the Hudson Bay railway is the difficulty of navigating, not the Bay itself, but Hudson Strait, which leads into it. The strait opens out into the Atlantic a little below Greenland. It is between four and five hundred miles long, and from fifty to two hundred miles wide. From the middle of October until June it is sure to be full of ice from the Arctic Ocean, and some parts of it are usually blocked for a month longer. Moreover, it is not safe to rely upon it being open later than the first week in October.

CHAPTER XXI

THE GREAT TRANSCONTINENTAL RAILWAYS

CAN you imagine all the railroads of the United States divided into two systems, paralleling each other from our Atlantic coast to the Pacific? Think of them as north of a line drawn from Baltimore westward through St. Louis to San Francisco. Let the distance between terminals be nearly four thousand miles, and the total length of track ten times as great. Finally, suppose that the larger of the two systems is owned and operated by Uncle Sam, and the other by such a corporation as the New York Central. If you can do that you will have the background of the railroad situation in Canada to-day.

With a mile of track for every twenty-three people, Canada has more railroads in proportion to her population than any other country on earth. Only the United States and Russia have a greater total mileage. Geographically, British America extends from our northern border to the Arctic Ocean, but the active life of the Dominion is mostly confined to a strip of territory averaging less than five hundred miles wide from north to south and more than three thousand miles long.

Our railroad development began in the East and extended westward, but we have no system that reaches from coast to coast. Canada, on the other hand, has two such systems. Neither have we any such transporta-

tion service as the Canadian Pacific, which can take a passenger on board ship at Liverpool, Hamburg, Cherbourg, land him in Canada, carry him across the continent and across the Pacific, and set him down in Japan or China, putting him up at its own hotels whenever he wants to stop over.

Before the World War, the Canadian Pacific, with some fourteen thousand miles of its own rails, and five thousand more under its operation, was the world's largest land and water transportation system under one management. To go over all its lines would take nearly three weeks of continuous travel behind a fast engine. Now it has been eclipsed on land by the Canadian National lines, with twenty-two thousand miles of track, owned and operated by the Dominion government.

I have ridden for thousands of miles over both of the present systems, and have made trips in Canada when some of the lines were in the process of building. I have talked with the pioneers of railroad development in the Dominion and the officials of the great railway organizations of to-day. I have watched the wheat trains pull out of Winnipeg, one every half hour, all day and all night. Both the Canadian National and the Canadian Pacific are doing their jobs well, and both furnish excellent equipment and service on their main lines. As a rule, the trains run at slower speed than the best expresses of the United States, and, excepting the Trans-Canada Limited, they stop at places so small that they would get only a shriek of the whistle from our fast railway flyers. Most of the lines have only a single track, but this is generally sufficient to handle the traffic. Both systems operate almost exclusively their own sleeping and dining cars.

With a population of less than two and one half persons per square mile, strung out across a continent nearly three thousand miles wide, Canada has had to make enormous investments in railroads to bind the country together.

"Selling the scenery" has become a great source of revenue to Canada's railroads, which are experts in exploiting the natural beauties of the Dominion. Americans furnish the bulk of the patronage over the scenic routes.

Each has also its own express service, and combined they have more than one hundred thousand miles of telegraph lines open to the use of the public. The food I have eaten on the dining cars here has averaged in quality above that served on eastern trains in the United States. The prices are about the same, though the portions, as a rule, are more generous.

The managements of both of these systems make strenuous endeavours to cultivate the highest morale in their employees, and to win their coöperation in the struggle for efficiency. Every man in the Canadian railroad service understands that the Dominion needs more and more people, and from managing vice presidents to dining-car stewards, each seems to have constituted himself an entertainment committee of one. I have never received anywhere more courteous treatment from train men, and I notice that neither the brakemen nor the sleeper conductors consider themselves above helping me with my numerous pieces of baggage.

The Canadian Pacific has a chain of thirteen hotels supplemented by eleven bungalow camps extending from St. Andrews, New Brunswick, to Victoria in British Columbia. The Canadian National lines operate half as many between Ottawa and the Rockies. Both organizations are most enterprising in selling not merely transportation, but all the attractions, business opportunities, and resources of Canada. Either one will cheerfully locate a newly arrived immigrant on the land, take an American sportsman on a hunting trip, find a factory site or lumber tract for a group of capitalists, or help a bridegroom plan his honeymoon journey. Both are tremendous forces for advertising Canada.

Canada's railroads have made the country. They have always been, and still are, ahead of the population and the traffic. Settlement in Canada has followed, instead of preceding, railroad construction, and the roads themselves have had to colonize the territories served by new lines. Uneconomic railroad building has been a part of the price the Dominion has had to pay, not only for settlers, but also for political unity. Both the Maritime Provinces and British Columbia refused to become parts of the Dominion except on condition that the Ottawa government build railways connecting them with central Canada. From that day to this, political pressure has been the force behind much of the railroad building in the Dominion.

The Canada that we know to-day may be said to have had its beginning when the Canadian Pacific Railway was put through to the west coast. In 1880 the job was turned over to a syndicate that soon became world famous. Its contract called for completion of the line in ten years, but it was finished within half that time. This saved British Columbia to the Dominion, and gave the British Empire another link in its world communications, including a direct route through its own possessions to the Far East and Australia. Within two years after it reached the western ocean, the Canadian Pacific began its steamship service to Japan and China, and tapped the Orient for cargoes to furnish traffic on its land line. Sixteen years later it bridged the Atlantic. It now has on both oceans a fleet of more than thirty vessels, including some of the finest passenger steamers afloat. In its lake, river, and coastwise services it operates fifty additional ships. It offers now a favoured route between London and the

Far East. The distance from Canton, China, to Liverpool, via Canada, is fifteen hundred miles shorter than by way of San Francisco and New York, and the journey takes much less time than that by the Suez or Panama all-water routes.

Much of the main line between Montreal and Vancouver is being double tracked; the mountain grades are constantly being reduced; tunnels are taking the place of construction exposed to the snows; branches and connections have been extended northward into new country, and southward to connect with United States lines. To pay its nearly seventy-five thousand employees takes almost eight million dollars a month. Its car shops at Angus, near Montreal, are one of the largest works of the kind on the continent, and they employ more than six thousand men. Its freight yard at Winnipeg is among the biggest in the world. Though the company is not fifty years old, its total assets were recently valued at a figure in excess of one billion dollars. It is, next to the government, the most powerful single organization within the Dominion, and its influence is felt in Europe and Asia.

The success of the Canadian Pacific, and the development that followed, started in Canada the fever for railroad construction that burned itself out only a few years ago. The provincial and the Dominion governments and even municipalities eagerly backed almost any railroad project that promised to open up new territory. Not only were charters granted freely, but the obligations of the constructing companies were guaranteed, and cash subsidies advanced to the promoters of new lines. The actual transportation needs of large areas were discounted decades in advance, and competing lines were built parallel to one

another in districts producing hardly enough traffic for a single railroad.

In 1903 the Grand Trunk, the oldest railroad system in Canada, contracted with the government for the construction of a new transcontinental line from Quebec to Winnipeg and from Winnipeg to Prince Rupert, a new terminus on the Pacific Coast, a total of 3559 miles. In the meantime, another road, the Canadian Northern, starting in Manitoba, spread itself through the prairie provinces, crossed the Rockies, and entered into competition with the Canadian Pacific at Vancouver. By 1914 it had bought and built a total of 9400 miles of railway. The Grand Trunk also had grown, and it then had 7500 miles of tracks, a chain of hotels, steamship lines on the Pacific coast, and grain elevators and terminals in the Dominion and the United States. Both roads crossed the Rockies at the same point, giving Canada two transcontinental lines over the northern route where one would have been plenty.

It was in 1914 that these railroad chickens came home to Ottawa to roost, and the end of the World War found the government up to its neck in the transportation business. This did not come about by anybody's choosing, but through the working of forces set in motion years ago. The Dominion government was first led into running railroads by its bargain with the Maritime Provinces. Out of this came government operation of the Intercolonial Railways serving the eastern provinces and joining them to the St. Lawrence basin. This system never earned any profits. The government built the National Transcontinental from Quebec to Winnipeg on the understanding that the Grand Trunk would lease it for fifty years.

When it was finished, the corporation begged off, and the government was compelled to operate the line. In 1914, the owners of the Canadian Northern announced that unless they received sixty million dollars at once they would have to suspend. They got the money. Two years later it was the Grand Trunk Pacific that appealed to Ottawa for financial aid. Sustaining these railroads was such a drain on the public treasury that finally the government assumed responsibility for all their obligations and absolute control of the properties. It then began to weld them into the single system now known as the Canadian National Railways.

For years the Canadian Pacific Railway has paid dividends regularly. The lines making up the Canadian National have, for the most part, never paid anything, and they were unloaded upon the government because they were regarded more as liabilities than as assets. As the largest taxpayer in Canada, the Canadian Pacific Railway Company must contribute indirectly to the support of its competitor, unless the government lines are able to earn their own way.

After the war, one year's deficit on the government lines was sixty-seven million dollars. In railroad subsidies, Canada has paid out nearly three hundred million dollars. Bonds and other railroad obligations to the total of four hundred and fifty-five millions have been guaranteed, while four hundred and seventy millions of public moneys were spent in building roads for the government. One student of Canada's railroad policy tells me that the national treasury would now be four hundred millions to the good if the government had given the National Transcontinental, the Canadian Northern, and the Grand

Trunk Pacific to some corporation, and had thrown in a cash bonus of two hundred millions besides.

The government railroads now furnish a complete service to virtually all parts of Canada, including the chief ports, from Halifax on the east coast to Vancouver and Prince Rupert on the west. The Canadian National Railways operate the Grand Trunk hotels and west coast steamers, and also the sixty-five ships of the Canadian Government Merchant Marine, which sail the seven seas. The curious situation exists of railroads owned by the government of Canada using two thousand miles of track in the United States. Nothing was thought of the Grand Trunk having terminals at Portland, Maine and New London, Connecticut, and Chicago, but the government ownership of these properties raises the possibility of conflict between the two countries in railroad matters.

The government is fortunate in having in charge of the Canadian National lines Sir Henry Thornton, one of the great railroad men of the time. To him all Canada is looking to find the way out of the wilderness into which circumstances have brought the Dominion. Under his administration duplicated services are being eliminated, and the deficits have been greatly reduced. He is confident the lines can be made self-supporting. He said the other day:

"The world expects the Canadian National Railways to fail. It does not believe that we can make them succeed. I do. I believe that if the army of workers lines up behind us, we shall achieve the greatest success the annals of transportation have ever recorded."

Though he is to-day a British subject, Sir Henry was born an American. His boyhood home was in Lafayette, Indiana. From St. Paul's School in New Hampshire and

the University of Pennsylvania, he went to the Pennsylvania Railroad. He rose to be manager of the Long Island Railroad, where he had much to do with the construction and operation of the Pennsylvania Terminal in New York City. England sent for him in 1914 to manage the Great Eastern Railway, which has the largest passenger traffic of any railroad in the world, and during the war he was in charge of all British army transportation in Europe.

Sir Henry is not the first railroad genius America has furnished to Canada. Lord Shaughnessy, for many years the president and then the chairman of the Canadian Pacific, was born in Milwaukee. When he was a boy of fifteen he went to work for the Chicago, Milwaukee and St. Paul Railroad. I once spent a morning with him in his office at Montreal, where he told me of his early career and his vision of the future of Canada and the great transportation system that he had raised up from infancy. His successor, E. W. Beatty, is the first Canadian-born president the Canadian Pacific has ever had.

Thomas Shaughnessy came to Canada at the invitation of William Van Horne, another American. Van Horne became the manager of the project after the government had given up hope of building a road across western Canada. It was he who carried it through the early period of desperate struggle with the wilderness and the equally desperate fight for money with which to meet the payroll. Years ago he established the present policy of courtesy to passengers, and placarded the system with a demand for "Parisian politeness on the C. P. R." During their régime, both men had associated with them many other Americans whom they called to Canada to lend a hand in one of the greatest transportation jobs the world has ever known.

CHAPTER XXII

THE LAND OF FURS

FOR four hundred years furs from Canada have been warming the flesh and enhancing the charms of feminine beauty. It is to-day the chief breeding place of animals valued for their skins, and it is likely to remain so for centuries to come.

When the settlement of North America was at its beginning, the French adventurers making fortunes in furs did their best to discourage the incoming colonists, for they knew that this meant the death of the wilderness. If they could have had their way, all that is now Canada would have been left to the Indian trappers and the white traders who relieved them of their annual catches. As it is, improved methods of transportation, trapping, and hunting are reducing the available supply, and the demand is such that the furriers have had to popularize skins formerly despised as too common, and many Canadians have gone into the business of breeding fur-bearing animals.

Winnipeg has long been an important city in the Canadian fur trade, and here the world's greatest fur organization has its headquarters. I refer, of course, to the Hudson's Bay Company, which for more than two hundred and fifty years has been bartering goods for the furs of British North America. It was founded when the British had scarcely a foothold in Canada, and its operations won for

The fur business of Canada has its beginning when the company trader strikes a bargain with the Eskimo for his season's catch of the white fox of the arctic and other skins.

The Hudson's Bay Company has more than two hundred trading posts where Indians, Eskimos, and white trappers exchange furs for goods. Eighteen of the stations lie near or north of the Arctic Circle.

Most of the fine fox skins now marketed in Canada come from animals raised in captivity on fur farms. Occasionally a cat may act as a substitute mother for a litter of fox kittens.

them their dominion over the northwestern part of our continent. In the beginning it was but one of many trading enterprises of the New World. To-day it has adapted itself to the tremendous changes in our civilization and it is bigger, stronger, and richer than ever.

Massachusetts Colony was not fifty years old when the *Nonsuch*, loaded to the waterline with the first cargo of furs, sailed for England from Hudson Bay. The success of the voyage led the dukes and lords who backed the venture to ask King Charles II for a charter. This was granted in 1670, and thus came into existence, so far as the word of a king could make it so, "The Governor and Company of Adventurers of England Trading into Hudson's Bay," exclusive lords and proprietors of a vast and but vaguely known region extending from Hudson Bay westward, with sole rights to fish, hunt, and trade therein.

It remained for the Company to make good the privileges conferred by the charter and maintain the profits, which at that period sometimes amounted to one hundred per cent. a year. For nearly a century the company's ships and forts did battle with the armed forces of the French. For another long period its factors and traders had to meet the attacks of rival companies. At times the company was nearly wiped out by the heavy losses it sustained. For almost two centuries it furnished the only government of the Canadian Northwest, and without the use of a standing army it administered a vast region, out of which provinces and territories have since been carved.

The "Company of Adventurers" has now become a fifteen million dollar corporation, paying regularly five per cent. on ten million dollars' worth of preferred stock. A fleet of river, lake, and ocean steamers has succeeded the

Nonsuch. The early trading posts, stocked with crude tools, weapons, and ornaments for the Indians, have been supplemented by a chain of eleven department stores, extending from Winnipeg to Vancouver, and at the same time the number of trading posts exchanging goods for furs is greater than ever. There are about two hundred of these posts, eighteen of which are near or north of the arctic circle. The Company no longer actually governs any territory, and it is selling to settlers the remainder of the seven million acres in the fertile belt it has received from the Dominion since the surrender of its ancient rights in the Northwest.

The story of the Hudson's Bay Company is a large part of the history of Canada. Many books have been written about it, and countless romances built upon the lives of its men stationed in the wilds. Here at Winnipeg the company has an historical exhibit where one may visualize the life of the trappers and the traders, and gain an idea of the adventures that are still commonplaces in their day's work. The company museum contains specimen skins of every kind of Canadian fur-bearing animal. The life of the Indians and the Eskimos is reproduced through the exhibits of their tools, boats, weapons, and housekeeping equipment.

The success of the Hudson's Bay Company has rested upon its relations with the Indians. The organization is proud of the fact that it has never engaged in wars with the tribes. The business has always been on a voluntary basis, and the Indians have to come to the Company posts of their own free will. At first the traders' stocks were limited, but through centuries of contact with civilization the wants of the red man have increased and become

more varied. They now include nearly everything that a white man would wish if he were living in the woods.

The first skins brought in from Hudson Bay were practically all beavers. This led to the exchange being based on the value of a single beaver skin, or "made beaver." Sticks, quills, or brass tokens were used, each designating a "made beaver," or a fraction thereof. The prices of a pound of powder, a gun, or a quart of glass beads were reckoned in "made beaver."

Early in its history the Company decided that Scotchmen made the best traders and were most successful in dealing with the Indians. Young Scotchmen were usually apprenticed as clerks on five-year contracts, and if successful they might hope to become traders, chief traders, factors, and chief factors. Men in these grades were considered officers of the company and received commissions. Mechanics and men engaged in the transport service were known as "servants" of the company, and the distinction between "servants," clerks, and officers was almost as marked as in the various military ranks of an army. To-day, Canada is divided into eleven districts, each of which is in charge of a manager, and the old titles are no longer used.

A trader had to be a diplomat to preserve friendly relations with the Indians, an administrator to manage the Company's valuable properties in his charge, a shrewd bargainer to dispose of his stock on good terms, and at times soldier and explorer besides. The Company's charter authorized it to apply the laws of England in the territories under its jurisdiction, and its agents frequently had to administer justice with a stern hand. It early became the inflexible policy to seek out a horse thief, incendiary, or

murderer among the Indians and impose punishment, and it was the trader who had to catch his man and sometimes to execute him.

It was the activities of its rivals, and especially of the Northwest Company, that resulted in the establishment of the inland stations of the Hudson's Bay Company. As long as it had a monopoly, the Company was content to set up posts at points convenient for itself, and let the Indians do all the travelling, sometimes making them go as much as one thousand miles to dispose of their furs. The opposition, however, carried goods to the Indians, and thus penetrated to the far Northwest and the Mackenzie River country. This competition compelled the older organization to extend its posts all over Canada, and finally, in 1821, led to its absorption of the Northwest Company. To-day the chief competitor of the Hudson's Bay Company is the French firm of Revillon Frères.

The merger with the Northwest Company was preceded by years of violent struggle. The younger concern was the more aggressive. It tried to keep the Indians from selling furs to the Hudson's Bay traders. Its men destroyed the traps and fish nets, and stole the weapons, ammunition, and furs of their rivals. Neither was above almost any method of tricking the other if thereby furs might be gained. Once some Hudson's Bay men discovered the tracks of Indians returning from a hunt. They at once gave a great ball, inviting the men of the near by post of the rival company. While they plied their guests with all forms of entertainment, a small party packed four sledges with trade goods and stole off to the Indian camp. The next day the Northwest men heard of the arrival of the Indians and went to them to barter for furs, only to

find that all had been sold to the Hudson's Bay traders. At another time two rival groups of traders met en route to an Indian camp and decided to make a night of it. But the Northwest men kept sober, and, when the Hudson's Bay men were full of liquor, tied them to their sleds and started their dog teams back on the trail over which they had come. The Northwest traders then went on to the Indians and secured all the furs.

The Hudson's Bay Company sends all of its raw skins to London, where they are graded and prepared for the auction sales attended by fur buyers from all over the world. It does not sell any in Canada.

Nevertheless, the Dominion is an important fur-making centre. During a recent visit to Quebec, I spent a morning with the manager of a firm which handles millions of dollars' worth of furs every year. It has its own workshops where the skins are cured and the furs dressed and made into garments. The name of this firm is Holt, Renfrew and Company. Let us go back to Quebec and pay it a visit.

Imagine a quarter of a million dollars' worth of furs under one roof! Picture to your minds raw skins in bales, just as they were unloaded from an Indian canoe, and then look again and see wraps and coats made from them that would each bring five thousand dollars when sold on Fifth Avenue. If your imagination is vivid enough you may see the American beauties who will wear them and know how the furs will add to the sparkle of their eyes and at the same time lighten the purses of their sweethearts and husbands.

We shall first go to the cold storage rooms. Here are piles of sealskins from our Pribilof Islands. Put one of

these furs against your cheek. It feels like velvet. In these rooms are beavers from Labrador, sables from Russia, and squirrels from Siberia. There are scores of fox skins—blue, silver, black, and white. Some of them come from the cold arctic regions and others from fox farms not twenty minutes distant by motor. Take a look at this cloak of silvery gray fur. A year ago the skins from which it was made were on the backs of hair seals swimming in the mouth of the St. Lawrence River.

As we go through the factory, some of the secrets of fur making are whispered to us. For example, this bale contains fifteen hundred skins of the muskrat. The animals which produced them will change their names after a trip to the dyers. They will go into the vats and when they come out they will be Hudson Bay seals, and eventually will find their way into a black coat with a wonderful sheen. Years ago the muskrat skin was despised. Now it is made into coats that, under the trade name of Hudson seal, bring nearly as much as those of real seal.

Here are two Russian sables, little fellows of beautiful fur, that together will form a single neck piece. The undressed skins are worth seven hundred dollars the pair. As we look, the manager shows us two native sables that seem to be quite as fine. He tells us they can be had for eighty-five dollars each, or less than a quarter of the price of the Russian.

The most valuable fur in the world to-day is the sea otter, of which this firm gets only three or four skins in a year. But, in contrast, over there is a whole heap of Labrador otters, beautiful furs, which will wear almost for ever and will look almost as well as the sea otter itself. But you can have your choice of these at forty dollars

apiece. They are cheap chiefly because the Labrador skin is not in fashion with women. Fashion in furs is constantly changing. Not many years ago a black fox skin often brought as much as fifteen hundred dollars. To-day, so many are coming from the fur farms that the price has fallen to one hundred and fifty dollars. Scarcity is one of the chief considerations in determining the value of furs, and fashion always counts more than utility. The rich, like the kings of old, demand something that the poor cannot have, and lose their interest in the genuine furs when their imitations have become common and cheap.

The dyer and his art have greatly changed the fur trade. It is he who enables the salesgirl to wear furs that look like those of her customers. For example, here is a coat made of the best beaver. Its price is four hundred dollars, and beside it is another made of dyed rabbit fur, marked one hundred and fifty dollars. It is hard for a novice to tell which is the better. All sorts of new names have been devised by the furriers to popularize dyed skins of humble animals, from house cats to skunks, in order to increase the supply of good-looking and durable furs. Reliable dealers will tell you just what their garments are made of, but the unscrupulous pass off the imitations as the genuine article.

The business of dyeing furs was developed first in Germany, when that country led the world in making dyes. Now that New York is competing with London as a great fur market many of the best German dyers are at work there. From the standpoint of the consumer, the chief objection to dyed fur is that the natural never fades, while the dyed one is almost certain to change its hue after a time.

Now let us go into the rooms where the furs are made up. It is like a tailor shop. Here is a designer, evolving new patterns out of big sheets of paper. There are the cutters, making trimmings, stoles, neck pieces, and coats. Each must be a colour expert, for a large part of the secret of fashioning a beautiful fur garment is in the skillful matching of the varying shades to give pleasing effects. Were the skins for a coat sewn together just as they come from the bale, the garment resulting would be a weird-looking patchwork. Even before the skins are selected, they must be graded for the colours and shadings which go far to determine their value. There are no rules for this work; it takes a natural aptitude and long experience. In the London warehouse of the Hudson's Bay Company, the men of a single family have superintended the grading of all the millions of skins handled there for more than one hundred years.

Turn over this unfinished beaver coat lying on the bench and look at the wrong side. See how small are the pieces of which it is made and how irregular are their shapes. It is a mass of little patches, yet the outer, or right side, looks as though it were made of large skins, all of about the same size and shape. A coat of muskrat, transformed by dyeing into Hudson seal, may require seventy-five skins; a moleskin coat may contain six hundred. But in making up either garment each skin must be cut into a number of pieces and fitted to others in order to get the blending of light and dark shades which means beauty and quality.

The Eskimo woman and her children wear as every-day necessities furs which if made into more fashionable garments would bring large sums. Usually the whole family goes on the annual trip to the trading post.

As Saskatchewan was not made a province until 1904, Regina is one of the youngest capital cities in Canada. It was for many years the headquarters of the Mounted Police for all the Northwest.

CHAPTER XXIII

SASKATCHEWAN

WE HAVE left Winnipeg and are now travelling across the great Canadian prairie, which stretches westward to the Rockies for a distance of eight hundred miles. This land, much of which in summer is in vast fields of golden grain, is now bare and brown, extending on and on in rolling treeless plains as far as our eyes can reach. Most of it is cut up into sections a mile square, divided by highway spaces one hundred feet wide. However, an automobile or wagon can go almost anywhere on the prairie, and everyone makes his own road.

Sixty miles west of Winnipeg we pass Portage la Prairie, near where John Sanderson, the man who filed the first homestead on the prairies, is still living. This part of the Dominion was then inhabited by Indians, and its only roads were the buffalo trails made by the great herds that roamed the country. To-day it is dotted with the comfortable homes of prosperous farmers, and the transcontinental railways have brought it within a few days' travel of the Atlantic and the Pacific seaboards.

A hundred and fifty miles farther west we cross the boundary into Saskatchewan, the greatest wheat province of the Dominion. It has an area larger than that of any European country except Russia, and is as large as France, Belgium, and Holland combined. From the United States

boundary, rolling grain lands extend northward through more than one third of its area. The remainder is mostly forest, thinning out toward Reindeer Lake and Lake Athabaska at the north, and inhabited chiefly by deer, elk, moose, and black bear. There are saw-mills at work throughout the central part of the province, and the annual lumber cut is worth in the neighbourhood of two million dollars.

Except at the southwest, Saskatchewan is well watered. The Saskatchewan River, which has many branches, drains the southern and central sections. This stream in the early days was a canoe route to the Rockies. For a long time afterward, when the only railway was the Canadian Pacific line in the southern part of the province, the river was the highway of commerce for the north. It was used largely by settlers who floated their belongings down it to the homesteads they had taken up on its banks. Now the steamboats that plied there have almost entirely disappeared. The northern part of the province is made up of lakes and rivers so numerous that some of them have not yet been named. The southwest is a strip of semi-arid land that has been brought under cultivation by irrigation and now raises large crops of alfalfa.

A small part of southwestern Saskatchewan, near the Alberta boundary, is adapted for cattle and sheep raising. The Chinook winds from the Pacific keep the winters mild and the snowfall light, so that live stock may graze in the open all the year round. Elsewhere the winters are extremely cold. The ground is frozen dry and hard, the lakes and streams are covered with ice, and the average elevation of about fifteen hundred feet above sea level makes the air dry and crisp. The people do not seem to

mind the cold. I have seen children playing out-of-doors when it was twenty-five degrees below zero. The summers are hot, and the long days of sunshine are just right for wheat growing.

After travelling fourteen or fifteen hours from Winnipeg, we are in Regina, the capital of Saskatchewan, on the main line of the Canadian Pacific, about midway between Winnipeg and the Rockies. I visited it first in 1905, when the province was less than a year old. Until that time all the land between Manitoba and British Columbia, from the United States to the Arctic Ocean, belonged to the Northwest Territories. It had minor subdivisions, but the country as a whole was governed by territorial officials with headquarters at Regina. As the flood of immigrants began to spread over the West, the people of the wheat belt decided that they wanted more than a territorial government and so brought the matter before the Canadian parliament. As a result the great inland provinces of Saskatchewan and Alberta were formed. They are the only provinces in the Dominion that do not border on the sea.

Regina was then a town of ragged houses, ungainly buildings, and wide streets with board sidewalks reaching far out into the country. One of the streets was two miles long, extending across the prairie to the mounted police barracks and the government house. Regina was the headquarters of the Northwest Mounted Police until that organization was amalgamated with the dominion force as the Royal Canadian Mounted Police, and the city is still a training camp for recruits. Saskatchewan was not then old enough to have a state house, and the government offices were in rooms on the second floors of various

buildings. Most of the provincial business was done in a little brick structure above the Bank of Commerce.

The hotels of the town were then packed to overflowing, even in winter, and in the spring and summer it was not uncommon to find the halls filled with cots. I had to sleep in a room with two beds, and with a companion who snored so that he shook the door open night after night. It was of no use to complain, as the landlord could tell one to go elsewhere, knowing very well that there was no elsewhere but outdoors.

To-day Regina is ten times as large as it was twenty years ago. It is a modern city with up-to-date hotels, ten banks, handsome parliament buildings, and twelve railway lines radiating in every direction. It is the largest manufacturing centre between Winnipeg and Calgary, and an important distributing point for farm implements and supplies.

The dome of the capitol building, which was completed in 1911, can now be seen from miles away on the prairie. This is an imposing structure five hundred and forty-two feet long, situated in the midst of a beautiful park on the banks of an artificial lake made by draining Wascana Creek. The city has many other parks, and the residence streets are lined with young trees, planted within the last twenty years. Forty miles to the east is a government farm at Indian Head, where experiments are made in growing and testing trees suited to the prairies. Fifty million seedlings have been distributed in one year among the farms and towns. Out in the country the trees are planted as windbreaks and to provide the farmers with fuel. They have greatly changed the aspect of the prairies within the last two decades.

The grain lands of western Canada begin in Manitoba in the fertile Red River valley, which is world famous for the fine quality of its wheat. From here to the Rockies is a prairie sea, with farmsteads for islands.

American windmills tower over Saskatchewan prairie lands that were largely settled by American farmers. The province is still so thinly populated that it has only five people to every ten square miles.

The wheat harvest, like time and tide, waits for no man and when the crop is ready it must be promptly cut. The grain is usually threshed in the fields and sent at once to the nearest elevator.

While in Regina I have had a talk with the governor-general of Saskatchewan in his big two-story mansion that twenty years ago seemed to be situated in the middle of the prairie. When I motored out to visit His Excellency, although I was wrapped in buffalo robes and wore a coon-skin coat and coon-skin cap, I was almost frozen, and when I entered the mansion it was like jumping from winter into the lap of summer. At one end of the house is a conservatory, where the flowers bloom all the time, although Jack Frost has bitten off all other vegetation with the "forty-degrees-below-zero teeth" he uses in this latitude.

From Regina, the main line of the Canadian Pacific Railway runs west to Calgary. Were we to travel by that route, we should pass through Moose Jaw and Swift Current, two important commercial centres for the wheat lands. The story is told that Lord Dunsmore, a pioneer settler, once mended the wheel of his prairie cart with the jaw bone of a moose on the site of the former city, and thus gave the place its name. Moose Jaw is a live stock as well as a wheat shipping point. It has the largest stock yards west of Winnipeg. An extensive dairying industry has grown up in that region.

North of Regina are Prince Albert and Battleford, noted for their fur trade and lumber mills, and also Saskatoon, the second largest city of the province, which we shall visit on our way to Edmonton. At Saskatoon is the University of Saskatchewan, which was patterned largely after the University of Chicago. It has the right to a Rhodes scholarship, and its departments include all the arts and sciences.

As sixty per cent. of the people are dependent upon

agriculture, farm courses receive much attention. A thousand-acre experimental farm is owned by the university and the engineering courses include the designing and operation of farm machinery. Even the elementary schools are interested in agriculture, a campaign having been carried on recently to eradicate gophers, which destroy the wheat. The children killed two million of these little animals in one year, thereby saving, it is estimated, a million bushels of grain. A department of ceramics has been organized at the university to experiment with the extensive clay deposits of the province, the various grades of which are suited for building brick, tile, pottery, and china. Saskatchewan's only other mineral of any importance is lignite coal, although natural gas has been discovered at Swift Current.

CHAPTER XXIV

THE WORLD'S LARGEST WHEATFIELD

FOR the past two weeks I have been travelling through lands that produce ninety per cent. of Canada's most valuable asset—wheat. The Dominion is the second greatest wheat country in the world, ranking next to the United States. It is the granary of the British Empire, raising annually twice as much wheat as Australia and fifty million bushels more than India. The wheat crop is increasing and Canada may some day lead the world in its production. These prairies contain what is probably the most extensive unbroken area of grain land on earth. In fact, so much wheat is planted in some regions that it forms an almost continuous field reaching for hundreds of miles. The soil is a rich black loam that produces easily twenty bushels to an acre, and often forty and fifty.

The Canadian wheat belt extends from the Red River valley of Manitoba to the foothills of the Rockies, and from Minnesota and North Dakota northward for a distance greater than from Philadelphia to Pittsburgh. New wheat lands are constantly being opened, and large crops are now grown in the Peace River country, three hundred miles north of Edmonton.

A man who is an authority on wheat raising tells me that the possible acreage in the Canadian West is enormous. Says he:

"We have something like three hundred and twenty thousand square miles of wheat lands. Divide this in two, setting half aside for poor soil and mixed farming, and there is left more than one hundred thousand square miles. In round numbers, it is one hundred million acres, and the probability is that it can raise an average of twenty-five bushels to the acre. This gives us a possible crop of twenty-five hundred million bushels, which is more than three times as much as the United States produces in a year. I do not say that Canada will soon reach that figure, but her wheat yield will steadily increase, and it will not be long before it will equal yours.

"We were producing grain near Winnipeg long before your Western states existed. Wheat was raised in Manitoba by Lord Selkirk's colony as far back as 1812. The settlers came in through Hudson Bay and worked their way down to the prairie. They were so far from the markets that there was no demand outside their own wants, and it was only when the United States had developed its West that we began to farm in earnest. Even then we had to wait for the railroads, which were first built through early in the 80's."

More than half the total wheat crop of the Dominion is raised in Saskatchewan, and still only one fifth of the fifty-eight million acres of arable land in that province is under cultivation. Indeed, wheat here is what coals are to Newcastle or diamonds to Kimberley. This applies to quality as well as quantity, for at a recent International Grain and Hay Show held at Chicago a farmer from Saskatchewan carried off the first prize for the best wheat grown on the North American continent.

The principal wheat area extends from the southeast

Wheat is to Saskatchewan what coals are to Newcastle. With only one fifth of its arable land being farmed, the province raises more than half the total crop of the Dominion.

Farming is done on a large scale on the great wheat farms. Ploughs turning over twelve furrows at a time are pulled by traction engines, and when the wheat is ripe a dozen binders are started in one field.

corner of the province northwesterly along the valley of the Saskatchewan River to the Alberta boundary. This belt is five hundred miles long and in some places two hundred miles wide. Many of its farms contain thousands of acres, and the average holding is three hundred and twenty acres, with one hundred and fifty acres in wheat. When the land was first settled, wheat was the only crop raised, but mixed farming is becoming more important each year and there are now large crops of oats, hay, and alfalfa.

The dry climate and hot summer days of the prairies are just right for producing a hard grain, with the high gluten content that makes a big loaf of bread. In that quality Canadian wheat ranks highest in the world. It is mixed with even the finest of the United States product to produce the best flour.

The chief varieties grown are red fife and marquis. Red fife was discovered by a Canadian farmer and is the older. Marquis was originated by a scientist of the Dominion Agricultural Department by crossing red fife with an early ripening Indian wheat known as hard red Calcutta. It was distributed among the farmers for general use in 1909, and quickly became the most valuable wheat produced in America.

During various trips to Canada I have seen the wheat belt in all its aspects. As soon as the snow has melted and the frost is out of the ground the ploughs are started. The ploughing may be done by the farmers, each on his own land, or by contractors who make a business of preparing fields for planting, and who, later on, do much of the threshing. The ordinary farmer uses a gang plough and from four to a half dozen horses. With four horses he is able to plough more than two acres a day. Much of the

work is done by tractors, which pull gang ploughs that turn over a strip of sod as wide as the average city sidewalk.

The next process is back-setting. This means going over the field again and throwing the furrows in the opposite direction. Where the land is new, some of the farmers plough it in the spring and back-set it in the summer, seeding it during the following spring. Others, who are anxious to get quick returns, sow wheat the same year that they break up the soil. Sometimes flax is planted as the first crop and wheat the next year.

The old picture of the farmer going over the ploughed ground sowing the grain broadcast is something one never sees in Canada. The wheat here is planted with drills, usually pulled by four horses, although on the larger farms several drills, drawn by tractors, sometimes follow one another over the fields.

The busiest time of the year comes with the harvest, which usually begins about the middle of August. The farmers now go to work with a vim. In many instances the women and the girls join the men and the boys in the fields. Nearly every man has his own harvesting machinery and the girls sometimes drive the binders that cut the grain. At the same time thousands of labourers are brought in from the United States, eastern Canada, and even from England. They are transported at reduced rates by the railroads and are sure of work at good wages until the grain has been loaded upon the cars that take it to the head of the Great Lakes.

Harvesting on the larger farms goes on from daybreak to dark, and sometimes even by twilight and moonlight. After the wheat reaches a certain point in ripening, it

must be cut without delay. If it becomes wet it will deteriorate, and if left too long it will hull during the harvesting, or an untimely frost may ruin it. I have visited one farm near Dundurn where sixteen hundred acres of grain all became ripe overnight. The next morning the owner started a dozen harvesters at work, keeping the machines going until every stalk was cut. Horses were put on in relays every four hours and there was no stopping to rest at the end of the field. In Alberta there is a farm five times as large, where sixty binders, each pulled by a four-horse team, are used to cut the crop.

Riding through the country in the fall, one is seldom away from the sound of the threshing machine. Only a few farmers own these machines, most of the threshing being done by contractors and their crews who go from farm to farm.

Imagine yourself with me at threshing time, and let us see how the work is done. The wheatfield we choose contains one thousand acres and it is spotted with shocks, or stooks, as they are called here. Each stook consists of a number of sheaves stood upon end on the ground with others so arranged on top that it will shed rain. A half dozen teams are moving over the field gathering up the stooks. As soon as a wagon is loaded it is driven to the thresher, into whose greedy mouth the sheaves are poured continuously from sunrise to sunset. At the same time grain is flowing out of the thresher into the wagons or motor trucks that carry it away.

In the United States wheat is often held by the farmers for a favourable price. In Canada very few farms have their own granaries. The wheat goes from the threshing machine to the local elevator, or, if none is accessible, it is

sent directly to the railroad and shipped to Fort William and Port Arthur. There are now elevators at fifteen hundred different places throughout the wheat region. Each of these stations has from one to nine elevators standing out on the landscape, indicating the productiveness of the surrounding country. The elevators of Canada have a total capacity of two hundred and thirty-eight million bushels. There are companies that have chains of such granaries. They will either store the wheat for the farmer, handle it on commission, or buy it from him directly at a price based on the current market value of that in storage at Fort William.

The wheat begins to come to the elevators about the first of September, and by the middle or latter part of October they are well filled. Each has a license, and is inspected regularly by the government. In order to maintain the high standard of western Canadian wheat, every shipment must be weighed and tested by a Dominion weigh-master.

Many of the country elevators are owned by milling companies. The flour industry is centred in Ontario, the largest mill in the Dominion being at Port Colborne at the western end of the Welland Canal. Flour is manufactured in large quantities also at Fort William, Toronto, Montreal, and Winnipeg. Smaller mills exist throughout Canada, and for many years the Hudson's Bay Company operated one at Fort Vermilion, six hundred miles northwest of Winnipeg. Ten million barrels of flour are annually exported, almost half of which is taken by England.

What Canada gets for her wheat depends not only on her own crop and that of the United States, but on conditions all over the world. Wheat is raised in every

part of the globe, and is harvested in one place or another each month of the year. Therefore, a drought in Australia, a frost in Argentina, monsoons in India, new tariff laws in a given country, or a host of other reasons, may cause a drop or a rise in the prices here. In any event, though the price in Canada may be no higher than that paid in the United States, it represents a larger return on the original investment. The Canadian farmer has the advantage of raising his wheat on land that has cost him perhaps only a third of what has been paid by his neighbour across the border.

CHAPTER XXV

THE OPEN DOOR IN CANADA

WHEREVER I go in Canada I find the people on tiptoe with eagerness for the growth of their country. I do not mean that they are hungry for territory; they already have more than they can use for a century or two. The increases they are praying for are in population, in the size of their towns, in the area of land under cultivation, and in the number of families settling new farms.

For seventy-five years Canada has given a cordial welcome to immigrants and during the last quarter of a century she has been conducting recruiting campaigns to get settlers. But where formerly immigration was only something to be desired, the situation to-day makes the coming of new people an imperative necessity. They are needed not merely to open up rich virgin lands, but to share the burden of carrying the national overhead.

A single fact will make clear this situation. The interest on the Canadian national debt is five times what the total revenues of the government were before the World War. The people are faced with the alternative of having less to live on after their increased taxes are paid, or of dividing their heavier expenses among a larger number of producers. Naturally they prefer the latter.

Canada's per capita debt mounted from seventy-two dollars in 1914 to three hundred and twenty-two dollars

three years after the war, and the total stands to-day at just under three billion dollars. The war has not only multiplied the public debt, but it has also greatly reduced immigration. The population of Canada is now nearly nine million, and if the high rate of increase that prevailed for the five years preceding 1914 is regained it will soon be ten million and more. The national production and revenues in that case will grow proportionately, and the individual share of the burden of taxes and debt will be considerably less.

The prediction of James J. Hill, many years ago, that Canada would have fifty million people by 1950 seems unlikely to be fulfilled, but every Canadian expects the population of his country eventually to reach that figure. The Dominion has four hundred and forty million acres of land suitable for cultivation. Only one fourth of this area is even occupied, and but thirteen per cent. is being tilled. To get men and women on the unoccupied lands is a national policy of the government that enjoys the support of all the people.

Canada's banner year was 1913, when more than four hundred thousand immigrants settled in the Dominion. During the war not one eighth of this number came in. The annual inflow is now only one fourth what it was the year before the World War, and about as many more are added by natural increase. If there is no radical change in conditions Canada should gain at least a million about every five years. On the other hand, she has lost population by emigration, especially to the United States.

Two racial stocks—British and French—make up eighty-three per cent. of the population. With our "melting pot" example next door, Canada is determined to preserve her

race character, and she controls immigration accordingly. She tries to get settlers chiefly from the British Isles, the northern countries of Europe, and the United States. Labourers from Japan and China are no longer admitted, though for many years the head taxes of five hundred dollars on each Chinese who came in paid most of the expenses of promoting general immigration.

We might profit by the way Canada regulates her immigration. In the first place, the government has wide discretion as to what kinds of people shall come in. It can partially close the gates during dull times, and open them wide when times are good. Immigrants are admitted only as the authorities are satisfied that they are fitted to work on the land and that they can become self-supporting. Government agents in foreign countries start immigrants on their way, and others meet them on their arrival. Canada does not allow hordes of foreigners to be thrown into her cities. She guides them out to the land, and helps them to establish themselves there. She has no fixed quota law such as ours, but she is vastly more particular as to whom she admits.

Besides the government, both the Canadian National and the Canadian Pacific railways maintain immigration offices abroad. The C. P. R. at one time had practically all Europe covered with agents engaged in drumming for immigrants, whom it brought across the Atlantic in its own steamers, carried through Canada on its own trains, and located on farms along its own lines. When that road was built the company received a grant of twenty-five million acres of government land. Four fifths of these have been sold, but the company still has five million acres for settlers. At the present time, it is selling land for

Canada feels acutely the need of more population. She not only welcomes settlers from the British Isles, northern Europe, and the United States, but gives them every assistance in establishing themselves on the land.

It is still possible for the immigrant to take up good land in Canada with the reasonable hope of making it into such a ranch as this. Many of the richest farmers of to-day came from the United States.

a cash payment of only one seventh of the purchase price, the balance to be paid within thirty-five years.

The government and the railroads spend large sums in advertising Canada as the Land of Great Opportunity. Ottawa and each of the provincial capitals produce literature by the ton. Information bureaus are maintained that answer every conceivable question about the resources and farming conditions in all parts of the Dominion. The government regularly exhibits at fairs in the United States and also in the United Kingdom. It distributes photographs and "movie" films, and sends out lecturers to tell of the glories of Canadian life. It advertises in our American farm journals and plasters the countries of northern Europe with posters. The Canadian Pacific conducts publicity campaigns for the purpose of attracting both tourists and settlers, and for forty years it has been a great force for the settlement and upbuilding of the Dominion.

For many years the bulk of the immigration from overseas has come from the British Isles. During the periods of unemployment in England thousands of jobless men have made a new start on this side of the Atlantic. In one single summer, more than eleven thousand British young men came here to help in the harvest, and all but four hundred decided to stay. Relief societies in England have sent over several thousand destitute boys and girls, who work with farmers for their board, lodging, and schooling. In southern Alberta small parcels of land of from five to ten acres are being reserved for farm labourers who, though putting in most of their time working for others, may thus get a start toward having farms of their own.

The government extended to all British soldiers who

served in the World War the same offer she made to her own men to set them up as farmers, and within a few years thirty thousand of them were placed on the land. It also loaned the former soldiers up to seventy-five hundred dollars each, and employed farm experts to train them and to help them get started. Eighty per cent. of them are regarded as making good.

As in the United States, domestic servants are at a premium. Consequently, young unmarried women are urged to come to the country. While in Toronto the other day I saw a party of fifty girls, Scotch, Irish, and English, who had just arrived from overseas under the wing of the Salvation Army. They were bright-eyed and rosy-cheeked. Their average age was eighteen. As soon as it was announced that the girls had arrived, the Salvation Army headquarters were surrounded by fashionable motor cars and overrun with Toronto women seeking cooks, maids, and governesses. Like the real bargains at a department store, this supply disappeared within a few hours. Some of the girls admitted privately that they were taking domestic employment only temporarily. They hoped soon to get places in factories or stores, or perhaps to find husbands.

Out in the farming country of Saskatchewan, girls are in as great demand as in Toronto. A record was kept during a period of three years of five hundred and twenty-six girls who were advanced their expenses to Canada. All immediately found household positions, and only six gave up and went home.

Canada estimates that each immigrant settler represents the addition of one thousand dollars to her national wealth. The railroads consider every man who takes up land along

their lines worth seven hundred dollars as a producer of traffic. An even higher valuation is placed upon immigrants from the United States, because they usually bring in more cash, farm equipment, and household goods than the Europeans. During the height of the American invasion of Canada, from 1910 to 1914, more than six hundred thousand citizens of the United States, most of them farm folk, came to this country. Many of them had several thousand dollars in cash, realized from the sale of their high-priced farms in the States. They used it to buy the cheap rich new lands of the wheat belt. Allowing a minimum of only one thousand dollars for each American, this immigration from over the border gave Canada more than six hundred million dollars of new money for development. As a distinguished citizen here once observed, this is the cheapest new capital ever discovered; it carries no interest charge and is backed by muscle and brains.

Within the last twenty-five years more than a million Americans have come into Canada, and in the prairie provinces they form a large part of the population. At one time, the government conducted campaigns to persuade the agricultural population of our middle western states to come in. Its land agents had groups of our farmers name committees of their own number to visit Canada at government expense and see for themselves that everything was as they represented. In those days, western Canada enjoyed an old-fashioned land boom such as we had in the States a generation earlier. Fortunes were made by individuals and syndicates in dealing in Canadian lands.

Boom conditions no longer prevail, and the best lands now command a good price, though still much less than

equally fertile tracts in the United States. Free lands are still to be had, but only on condition that the settler become a naturalized Canadian citizen. If an immigrant is not suited with the available free land, or if he chooses to retain his nationality, he is given every assistance in the selection and purchase of privately owned lands at a fair price.

Canada has had some curious experiences with colonization, especially with certain European religious sects. Among these were the Mennonites and the Doukhobors from Russia. The latter claimed to be descendants of Shadrach, Meshac, and Abednego, whom Nebuchadnezzar threw into the fiery furnace. They were an offshoot of the Greek Orthodox Church and lived by themselves beyond the Caucasus Mountains. In the early years of this century, when they were having trouble with the Czar's government, Quakers in the United States and England helped them to emigrate. A grant of two hundred and seventy-five thousand acres of land was secured from the Canadian government, and some seven or eight thousand of these people were transported to Canada. They were located near Yorkton, northwest of Winnipeg, where they established communistic villages and patterned their existence on the life they had led in far-away Russia.

All went well for a time, but the Canadians soon discovered that the Doukhobors were subject to periodic outbreaks of religious fanaticism that had many intolerable features. At times, they were seized with the notion that it was a sin to utilize the labour of animals, and so they turned off all their live stock. At other times, they had the idea that it was wrong to use machinery, and they scrapped their farm tools. But what brought them into

Corn is now grown successfully far north of the United States. Once thought to be suitable only for wheat growing and cattle raising, the prairies of Alberta have become the centre of mixed farming in the West.

The part played by Canada's railroads in colonizing her prairie provinces can hardly be overestimated. They maintain immigration agents abroad, and spend large sums in advertising the Dominion's attractions.

In helping a settler get started, the Canadian Pacific Railway may provide him with a house and barn built on some of the land still available out of its grant of twenty-five million acres.

most serious conflict with the authorities were the pilgrimages they made to meet Christ on the prairie. It was their notion that they must not appear before Him on his second coming except in their natural condition of complete nakedness. At one time seventeen hundred men, women, and children marched into Yorkton stark naked. At another, six hundred Doukhobors wandered off naked in mid-winter. On each occasion of this sort, the police had to round them up and confine them until they became sane enough to put on clothes and conduct themselves normally. Later they moved some of their colonies into British Columbia and many of them returned to Russia.

There are now more than thirty thousand Mennonites in Canada. They were originally Lutherans from Poland and Prussia, who about 1787 accepted refuge in Russia from religious persecution at home. They were favoured for a time by the Russian government, and became prosperous farmers and stock raisers, and also manufacturers. Just before the Canadian Pacific Railway was built, a number of them emigrated to Canada, settling along the Red River Valley in Manitoba. Their migration was financed to the extent of a million dollars by the Canadian government. This the Mennonites later repaid, and their communities thrived and prospered.

After the World War, the Mennonites in Russia suffered severely at the hands of the Soviet government. Their lands, factories, and other possessions were confiscated. Thereupon, with the aid of wealthy Mennonites in Pennsylvania, a fresh emigration to Canada was financed. These Mennonites were taken to southern Manitoba and Saskatchewan, where they were located on desirable lands. Among them were some who before the revolution

in Russia owned farms of from ten to fifteen thousand acres. One man had been worth a half million dollars, and was one of the largest horse breeders in Russia. Of the Mennonites who first came to Canada, some have since gone to Mexico, where they have formed colonies similar to those established in the Dominion.

The immigration offices of Canada are filled with stories of settlers who have made good. Many of these stories are in the form of letters written by the men and the women who have fought and won their battles with the land, some of whom are now wealthy and nationally prominent. Canada is perhaps a generation nearer the pioneer stage than we are, and on her farms of the frontier thousands are to-day laying the foundations of fortunes, as our farmers did when they settled the West. From the human documents I have examined I quote the advice to prospective settlers given by a man who, twelve years after landing from England with one dollar in his pocket, sold out his farm for thirty-five thousand dollars. These, says he, are the secrets of success in Canada:

1. Get a farm if it takes your last ten dollars.
2. If you are not married, get married, for successful bachelor farmers are not plentiful.
3. Give your hired help, and the members of your own family, an interest in the farm; whether it be a quarter section of land or a setting of eggs. Get them interested.
4. Work with and for your neighbours. Coöperation is the A B C of success. Always lend a hand to those in need, especially newcomers, and you will be repaid a hundredfold. Above all, value the good-will of your neighbours.
5. Lastly, be a true Canadian all the time, for no other country on earth will appreciate it so much or give so much in return.

CHAPTER XXVI

EDMONTON—THE GATEWAY TO THE NORTHWEST

COME with me to Edmonton, the capital and second largest city of Alberta. It is built on high bluffs on both sides of the Saskatchewan River, and we can see standing out against the landscape the great steel girders of the Canadian Pacific "high level" bridge, which joins the north and south sections of the city. Edmonton has between sixty-five and seventy thousand people. It is noted for its factories and wholesale houses and as a distributing point for the Northwest. There are several meat packing houses here, and the city's creameries supply forty per cent. of the entire output of butter in the province. It owns its own street railway, and its water, light, power, and telephone systems. It is an important educational centre, and in the University of Alberta has the farthest north college on the continent. It has eight hundred acres of parks and golf links belonging to the municipality.

The city is not far from the site of a Hudson's Bay Company fort built in 1795. Near by was a trading post of the Northwest Fur Company, its one time rival. When, in 1821, the two companies were amalgamated, a new fort was erected. This was called Edmonton, which was the name of the birthplace of the Hudson's Bay official in charge. You remember how the English town figures in John Gilpin's famous ride:

To-morrow is our wedding day,
And we will then repair
Unto the Bell at Edmonton
All in a chaise and pair.

My sister and my sister's child,
Myself and children three
Will fill the chaise, so you must ride
On horseback after we.

For a half century afterward Edmonton was an important trading and distributing point for all western Canada. Furs were sent from here down the Saskatchewan to York Factory on Hudson Bay, and supplies were packed overland to the Athabaska and taken by canoe to the head waters of that stream. Some were floated down the river to Lake Athabaska, thence into Great Slave Lake, and on into the Mackenzie, which carried them to the trading posts near the Arctic. Big cargoes of goods are still shipped by that route every year, and hundreds of thousands of dollars' worth of furs are brought back over it to Edmonton, to be sent on to New York or London.

After the transfer of this northern territory from the Hudson's Bay Company to the Canadian government, the town grew steadily. Its first real land boom occurred in 1882, when it was rumoured that the Canadian Pacific would build through here on its way to the Yellowhead Pass over the Rockies. The excitement caused by this rumour was short lived, however, as the officials decided to cross the mountains by the Kicking Horse Pass farther south. It was not until 1891, or almost ten years later, that the Canadian Pacific built a branch line to Strathcona, just across the river. A year later Edmonton was incorporated as a town, and in 1898 its growth was greatly

Four fifths of the coal reserves in the Dominion are in Alberta. In addition to the big producing mines, there are many "country banks," where the settlers can come and dig out the coal for themselves.

Throughout central Alberta are many dairies that supply the creameries of Edmonton and other towns. Butter is sent from here to the Northwest and Yukon territories, and is even shipped to England by way of the Panama Canal.

stimulated by its importance as an outfitting post for the thousands of gold seekers who made their way to the Klondike by the overland route.

In 1904, when its population was ten thousand, Edmonton became a city and the capital of Alberta. It was then a typical frontier town of the New West. Its main thoroughfare was a crooked street laid out along an old Indian trail, and its buildings were of all shapes, heights, and materials. The older structures were wooden and of one story, the newer ones of brick and stone and often four stories high. The town was growing rapidly and the price of business property was soon out of sight. A fifty-foot lot on Main Street sold for twenty thousand dollars, and there was a demand for land in the business section at four and five hundred dollars per front foot.

That year the Canadian Northern transcontinental line reached Edmonton, and four years later the Grand Trunk Pacific was put through. In 1913 the Canadian Pacific completed the bridge uniting the northern part of the city with its former terminus across the river at Strathcona, which had been made a part of Edmonton the year before. In addition to these three transcontinental lines, Edmonton now has railway connection with every part of central and southern Alberta, as well as a road built northwesterly along the Lesser Slave Lake to the Peace River district. The trains run over that route twice a week; they are equipped with sleeping cars and a diner for most of the way.

The location of Edmonton is much like that of St. Louis. The city is on a large river in the midst of a farming region almost as rich as the Mississippi Valley. It is in the northern part of the wheat belt, and the sur-

rounding country is adapted to mixed farming as well as wheat growing. It produces enormous crops of oats, barley, and timothy. I have seen wheat near here so tall that it almost tickled my chin, and oats and timothy as high as my head. The land will raise from seventy-five to a hundred and twenty-five bushels of oats to the acre, and an average of forty bushels of winter wheat. The farmers are now growing barley for hogs; they say that barley-fed pork is better than corn-fed pork. They also feed wheat to cattle and sheep. Indeed, when I was at Fort William I was told that thousands of sheep are fattened there each winter on the elevator screenings.

I am surprised at the climate of Edmonton. For most of the winter it is as mild as that of our central states. The weather is tempered by the Japanese current, just as western Europe is affected by the Gulf Stream. The warm winds that blow over the Rockies keep British Columbia green the year round and take the edge off the cold at Edmonton and Calgary.

Edmonton is an important coal centre, with thirty mines in its vicinity. Indeed, Alberta's coal deposits are estimated to contain 1,000,000,000,000 tons, which is one seventh of the total supply of the world. It is eighty per cent. of Canada's coal reserves. Coal is found throughout about half of the province from the United States boundary to the Peace River, and is mined at the rate of about five million tons a year. Half of the product is lignite, about two per cent. anthracite, and the remainder bituminous. Nova Scotia is a close second in the coal production of the Dominion, and British Columbia ranks third.

Because of the long haul across the prairies, Alberta coal

cannot compete in eastern Canada with that from the United States. Even the mines of Nova Scotia are farther from Canada's industrial centres than is our Appalachian coal region. Cape Breton is more than a thousand miles from Montreal, Ottawa, and Toronto, and about two thousand miles from Winnipeg. Scranton, Pennsylvania, on the other hand, is only four hundred miles from Toronto, and Pittsburgh but three hundred and sixty-seven. Consequently, Alberta coal supplies little more than the local demand.

Of the three hundred mines in operation, only about seventy are important. Many of the others, some operated by only one man, are known as "country banks." In these the coal is dug out by the farmers, who often drive thirty miles or more to one of the "banks." At some places bunk houses and stables have been erected to provide shelter for settlers who cannot make the round trip in one day.

Alberta ranks next to Ontario in the production of natural gas, which is found chiefly about Medicine Hat and in the Viking field, which supplies Edmonton. Oil in small quantities is produced south of Calgary, and new wells are being drilled in the southeastern part of the province near the Saskatchewan border, and even north of Peace River.

The Peace River Valley, the southernmost part of which is four hundred miles above Montana, is the northern frontier of Alberta. It has been opened up largely within the last ten years. Across the British Columbia line, part of the valley has been set aside as the Peace River Block, where the settlement is controlled by the Dominion government.

The basin of the Peace River consists of a vast region of level or rolling land, much of which is thickly wooded with fir, spruce, pine, tamarack, and birch. The forests are full of moose, deer, and bear, and the beaver, lynx, marten, and muskrat are trapped for their furs. There are vast stretches of rich black loam that produce annually about a million bushels of wheat, three or four million bushels of oats, and almost a million bushels of barley. Considering the latitude, the winter climate is moderate, and in summer there is almost continual daylight for the space of three months.

This district is dotted with settlements along the route of the railway from Edmonton. It has telephone and telegraph connections with southern Alberta, and a half dozen weekly newspapers are published in its various towns. There are all together a hundred or more schools. The largest settlement is Grande Prairie, near the British Columbia border, but the oldest is the town of Peace River, which lies in a thickly wooded region on the banks of the Peace. It is two hundred and fifty miles northwest of Edmonton. The trip, which was formerly over a wagon trail and took two or three weeks, can now be made by rail in twenty-six hours.

Steamboats ply up and down Peace River for hundreds of miles, the route downstream to Fort Smith being used by many trappers and prospectors bound for the far Northwest. The trip takes one past the historic old post of Fort Vermilion, two hundred and fifty miles beyond Peace River town. To the northeast of Vermilion is said to be a herd of wood buffalo, probably the last of their species roaming wild.

A shorter route from Edmonton to the Northwest, and

one that has grown in popularity since oil has been found along the Mackenzie, is down the Athabaska River, through Great Slave Lake, and down the Mackenzie to Fort Norman, the trading post for the oil region.

Let us imagine ourselves taking a trip over this route, which penetrates to the very heart of the Northwest Territories. The train leaves Edmonton only once a week. It usually starts Tuesday morning, and we should reach "End of Steel," on the bank of the Clearwater River, the following day. Here we take one of the little motor boats that push along the freight scows carrying supplies to the trading posts during the open season, and chug down that stream for twenty miles to its junction with the Athabaska at Fort McMurray.

At Fort McMurray we take a steamer and go down the Athabaska and across the lake of that name. The river loses its identity when it empties into the lake, the river that joins Lake Athabaska and Great Slave Lake being known as the Slave. The latter stream at times flows through land soaked in oil. This "tar sand," as it is called, has been used as paving material in Edmonton, and is said to have outlasted asphalt. It is probable that when better transportation facilities are available it will be commercially valuable.

Just before reaching Fort Smith, halfway between Lake Athabaska and Great Slave Lake, we leave our boat and ride in wagons over a portage of fifteen miles. Fort Smith is just across the Alberta boundary. It is the capital of the Northwest Territories. Here the Royal Canadian Mounted Police is all-powerful, and it must be satisfied that the traveller going farther north has food and other essentials sufficient for his trip. In this land, where sup-

plies are brought in only once a year, no chances are taken on allowing inexperienced prospectors to become public burdens.

Two hundred miles north of Fort Smith we reach Great Slave Lake, the fourth largest inland body of water on the North American continent. It is almost three hundred miles long, and the delta that is being pushed out at the mouth of the Slave River may some day divide the lake into two parts. Great Slave Lake is drained by the mighty Mackenzie, down which we float on the last lap of our journey. This river is as long as the Missouri, and carries a much larger volume of water. It is like the mighty waterways of Siberia.

We are several days going down the Mackenzie to Fort Norman. Fifty-four miles north of here, and only sixty miles south of the arctic circle, is the first producing oil well in the Northwest Territories. The well was the cause of a miniature "oil rush" to this land that is frozen for nine months of the year. At this time no one knows how much oil there is here. The region may never be of any greater importance than it is now, or it may be another mighty oil field such as those in Oklahoma and Texas. But even if oil is found in paying quantities it will be many years before its exploitation will be commercially profitable. The nearest railway is twelve hundred miles away, and the river boats are of such shallow draft that they cannot carry heavy freight. A pipe line to Prince Rupert or Vancouver would mean an expenditure of almost one hundred million dollars, and to make such a line pay it would be necessary to produce thirty thousand barrels of oil daily.

In the meantime, prospectors have come in from at

directions, travelling overland as well as by river. One man made the fifteen-hundred-mile trip from Edmonton with a dog team, and others have mushed their way over the mountains from the Klondike. Two aviators of the Imperial Oil Company attempted to fly to Fort Norman. They were obliged to land several hundred miles to the south and both planes were smashed. However, by using the undamaged parts of one plane they were able to repair the other, except for a propeller. They finally collected a pile of sled runners from a near-by trading post, stuck them together with glue made by boiling down a moose hide, and with a hunting knife carved out a pair of propellers that enabled them to fly back the eight hundred miles to Peace River.

On every hand I hear stories of how the vast Canadian Northwest is being opened up. Edmonton is at the gateway to the valleys of the Peace, the Athabaska, and the Mackenzie rivers, and each year sees more settlers penetrating the remote areas that once knew the white man only through the traders of the Hudson's Bay Company. Arthur Conan Doyle has caught the spirit of this new Northwest in his "Athabaska Trail":

I'll dream again of fields of grain that stretch from sky to sky,
And the little prairie hamlets where the cars go roaring by,
Wooden hamlets as I saw them—noble cities still to be——
To girdle stately Canada with gems from sea to sea.

* * * * * * *

I shall hear the roar of waters where the rapids foam and tear;
I shall smell the virgin upland with its balsam-laden air,
And shall dream that I am riding down the winding woody vale,
With the packer and the pack horse on the Athabaska Trail.

CHAPTER XXVII

THE PASSING OF THE CATTLE RANGE

THE story of southern Alberta is the story of the passing of Canada's great cattle ranches, the reclamation of millions of acres of dry land by irrigation, and the growth of general farming where once the open range stretched for hundreds of miles.

From Calgary I have ridden out to visit the mighty irrigation works of the Canadian Pacific Railway. This corporation has taken over three million acres, or a block of land forty miles wide and extending from Calgary one hundred and forty miles eastward. It is divided into three sections. The central division gets its water from the Saint Mary's River, and the east and west divisions from the Bow River, which does not depend upon the rainfall for its volume, being fed by the snows and glaciers of the Rockies.

At Bassano, about eighty miles from Calgary, is the great Horseshoe Bend dam, where the level of the Bow has been raised forty feet. The dam is eight thousand feet long, with a spillway of seven hundred and twenty feet. From it the water flows out through twenty-five hundred miles of irrigation canals and ditches. This dam has been the means by which the semi-arid lands of southern Alberta, formerly good only for cattle grazing, have been turned into thousands of farms, raising wheat, alfalfa, and corn, as well as fruits and vegetables.

The dam at Bassano is the second largest in the world, being exceeded in size only by the one at Aswan, which holds back the waters of the Nile. The water stored here flows out through 2,500 miles of irrigation canals and ditches.

The riproaring cowboy with his bucking bronco was a familiar figure of the old Alberta, but with the passing of the "Wild West" he is now rarely seen except in exhibitions known as "stampedes."

Among the ranch owners of the Alberta foothills is no less a personage than the Prince of Wales, who occasionally visits his property and rides herd on his cattle.

PASSING OF THE CATTLE RANGE

The ranching industry of Alberta was at its height during the thirty years from 1870 to 1900. With the disappearance of buffalo from the Canadian plains, cattle men from the United States began bringing their herds over the border to the grazing lands east of the foothills of the Rockies. The luxuriant prairie grass provided excellent forage, and the warm Chinook winds kept the winters so mild that the cattle could feed out-of-doors the year round. When the high ground was covered with snow, there were always river bottoms and hollows to furnish shelter and feed.

The United States cattle men were followed by Canadians and Britishers. One of the first big ranch holders was Senator Cochrane of Montreal. He owned sixty-seven thousand acres, and most of it cost him only a dollar an acre. There were other immense holdings, and the grazing industry continued to grow until it extended into southwestern Saskatchewan and included horses and sheep as well as cattle.

Then the homesteaders began to take up their claims. In 1902 the first tract of land for irrigation purposes was bought from the government by the Alberta Railway and Irrigation Company, and in 1903 the Canadian Pacific Railway's big irrigation project was begun. In May of the same year there occurred one of the severest snow storms in the history of the plains. It lasted for a week, and fully half the range cattle in what was then Alberta territory perished. The introduction of wire fences dealt another hard blow to cattle ranching. Large herds can be run all the year round only on an open range.

There are still a few big stock men in Alberta, but they have been crowded into the foothills west of the old orig-

inal "cow" country. Small herds pasture on the open range also in the Peace River district. As a matter of fact, Alberta still leads the Dominion in the production of beef and breeding cattle. It has as much livestock as ever, each mixed farm having at least a few head. There are a half million dairy cattle in the province.

Most of the stock raised to-day is pure bred. There are cattle sales at Calgary every year as big as any in the United States. The favourite animal is the Shorthorn, but there are many Polled Angus and Galloways. The best breeding animals come from England, and there are some ranchmen who make a specialty of raising choice beef for the English market. Within the last ten years the cattle in Alberta have tripled in number, and their total value is now in the neighbourhood of one hundred and twenty-five million dollars.

On my way from Edmonton to Calgary I passed through the famous dairying region of Alberta. The cheese industry is still in its infancy, but the province makes more than enough butter each year to spread a slice of bread for every man, woman, and child in the United States. It supplies butter for the Yukon and Northwest Territories, and is now shipping it to England via Vancouver and the Panama Canal.

Sheep can exist on poorer pasture than cattle, and some large flocks are still ranged in the higher foothills of southern Alberta. They are chiefly Merinos that have been brought in from Montana. On the small farms the homesteaders often raise the medium-fleeced English breeds, such as Shropshires, Hampshires, and Southdowns. Some of the ranchers are experimenting in raising the karakul sheep, a native of Central Asia, whose curly

black pelts are so highly prized for fur coats and wraps.

Horse raising was another big industry of early Alberta. The bronco is now almost extinct, and almost the only light-weight horse now reared is a high-bred animal valuable chiefly as a polo pony. In Alberta, as elsewhere in the Dominion and in the United States, the motor car has taken the place of the horse as a means of transportation, and nine tenths of the animals in the province to-day are of the heavy Clydesdale or Percheron types, and used solely for farm work.

I have gone through Calgary's several meat packing houses, and have visited its thirteen grain elevators, which all together can hold four million bushels of wheat. Calgary ranks next to Montreal and the twin ports of Fort William and Port Arthur in its grain storage capacity. It is surrounded by thousands of acres of wheat lands, not in vast stretches such as we saw in Saskatchewan, but divided up among the general farming lands of the province. The city is an important industrial centre, and in some of its factories natural gas, piped from wells a hundred miles away, is used to produce power.

Calgary is less than fifty years old. Nevertheless, it has sky-scrapers, fine public buildings, and wide streets and boulevards. Many of the business buildings are of the light gray sandstone found near by, and nearly every residence is surrounded by grounds. The city lies along the Bow and Elbow rivers, and the chief residential section on the heights above these streams has magnificent views of the peaks of the Rockies, one hundred miles distant.

Like many of the big cities of Western Canada, Calgary began as a fort of the Mounted Police. That was in 1874.

Its real growth dates from August, 1883, when the first train of the main line of the Canadian Pacific pulled into the town. Before that time much of the freight for the ranch lands came farther south through Macleod, which, the old-timers tell me, was the real "cow town" of southern Alberta. Goods were brought up the Missouri River to the head of navigation at Benton, Montana, and thence carried overland to Macleod in covered wagons drawn by horse, ox, or mule teams.

The cattle town of Calgary is now a matter of history, and the old cattle men who rode the western plains when Alberta was a wilderness have nearly all passed away. Indeed, it is hard to believe that this up-to-date place is the frontier town I found here some years ago. Then cowboys galloped through the streets, and fine-looking Englishmen in riding clothes played polo on the outskirts. The Ranchers' Club of that day was composed largely of the sons of wealthy British families. Many of them were remittance men who had come out here to make their fortunes and grow up with the country. Some came because they were ne'er-do-wells or their families did not want them at home, and others because they liked the wild life of the prairies. They received a certain amount of money every month or every quarter, most of which was spent in drinking and carousing. The son of an English lord, for instance, could be seen almost any day hanging over the bar, and another boy who had ducal blood in his veins would cheerfully borrow a quarter of you in the lean times just before remittance day.

Others of these men brought money with them to invest. One of them, the son of Admiral Cochrane of the British navy, owned a big ranch near Calgary on which he kept

Calgary, chief city of the prairie province of Alberta, is less than fifty years old. Beginning as a fur-trading and police post, it now has sky-scrapers and palatial homes.

At Macleod, in southern Alberta, the headquarters of the Mounted Police are in the centre of an important live-stock region, where, in the early days of open ranges, cattle thieves were a constant menace.

six thousand of the wildest Canadian cattle. Every year or so he brought in a new instalment of bulls from Scotland, giving his agents at home instructions to send him the fiercest animals they could secure. When asked why he did this, he replied:

"You see, I have to pay my cowboys so much a month, and I want to raise stock that will make them earn their wages. Besides, it adds to the life of the ranch."

"I went out once to see Billy Cochrane," said a Calgary banker to me. "When I arrived at the ranch I found him seated on the fence of one of his corrals watching a fight between two bulls. As he saw me he told me to hurry and have a look. I climbed up beside him, and as I watched the struggle going on beneath, I said: 'Why, Billy, if you do not separate those bulls one will soon kill the other.' 'Let them kill,' was the reply. 'This is the real thing. It is better than any Spanish bull fight, and I would give a bull any day for the show.'

"We watched the struggle for more than an hour, Cochrane clapping his hands and urging the animals on to battle. Finally one drove his horns into the side of the other and killed it. To my protest against this wanton waste of valuable live stock, Cochrane replied: 'Oh! it doesn't matter at all. We must have some fun.'"

Another famous character of old-time Calgary was Dickie Bright, the grandson of the man after whom Bright's disease was named. Dickie had been supplied with money by his grandfather and sent out. He invested it all in a ranch and then asked for a large remittance from time to time to increase his herds. He sent home florid stories of the money he was making and how he was fast becoming a cattle king. Shortly after writing one of his

most enthusiastic letters he received a dispatch from New York saying that his grandfather had just arrived and was coming out to see him. The boy was in a quandary. He had spent his remittance in riotous living and he had no cattle. Adjoining him, however, was one of the largest ranch owners of the West. Dickie confided his trouble to this man and persuaded him to lend a thousand head of his best stock for one night.

"Granddad can stay but a day," said he, "and I will see that they are driven back to you the next morning."

The rancher was something of a sportsman himself, and he finally consented to help the boy. The cattle were sent over. Old Doctor Bright duly arrived and was driven out to the herd, which Dickie said was only a sample of his stock that had been brought in to be shown to his visitor. The boy added, however, that it was not good to keep the cattle penned up, and that they must go back upon the range right away. The old doctor was delighted, and before he left he gave Dickie a check for ten thousand dollars to develop the business.

Another young remittance man added to his income by pretending to have a gopher farm. His father had never heard the word "gopher" before, and supposed that the tiny ground squirrels were some kind of valuable live stock. He was, therefore, quite pleased when his boy wrote an enthusiastic letter saying that he had now seven hundred blooded gophers on his range. When sonny added that the animals were in good condition, but that it would take a thousand dollars more to carry them through the winter for the market next spring, father sent on the money.

CHAPTER XXVIII

OVER THE GREAT DIVIDE

OVER the Great Divide and across the mighty ranges of the Rockies!

Hundreds of miles between ice-clad peaks and over snow-covered plains!

Up and down the ragged passes of towering mountains, their heads capped with blue glaciers, and their faces rough with beards of frosty pines!

For the last week I have been travelling across the western highland of Canada. I have gone over the backbone of the continent, which reaches north to Alaska and south to the Strait of Magellan. Here in Canada the Rockies extend in three ranges from western Alberta throughout the entire width of British Columbia. The easternmost marks a part of the boundary line between the provinces and the westernmost range rises steeply from the Pacific Ocean. All between is high plateaus and broken mountain chains spotted with glaciers.

This vast sea of mountains is said to be the equal of twenty-four Switzerlands, and I can well believe it. It is only five hours by rail across the Swiss Alps from Lucerne to Como, but the fastest Canadian Pacific trains cannot make the trip from Cochrane, Alberta, to Vancouver in less than twenty-three hours. Switzerland is noted the world over for its glaciers, yet here in the Selkirk range alone there are as many glaciers as in all the Alps thrown together.

I have visited the great mountain regions of the world. I have stood on the hills of Darjiling and watched the sun rise on Mount Everest. From the tops of the Andes, three miles above the level of the sea, I have taken a hair-raising ride in a hand-car down to the Pacific. I have looked into the sulphurous crater of old Popocatepetl, and I have stood among the Alpine glaciers on the top of the Jungfrau. But nowhere have I found Mother Nature more lavish in scenes of rugged grandeur than right here in Canada not far from our own northern boundary.

The mountains change at every turn of the wheels of our train. Now they rise almost straight up on both sides of the track for hundreds upon hundreds of feet. They shut out the sun and their tops touch the sky. Now we shoot out into the open, and there is a long vista of jagged hills rising one above the other until they fade away into the peaks on the horizon. We ride for miles where there is no sign of the works of man except the gleaming track, the snow sheds here and there, and the little mountain stations, where the shriek of our engine reverberates and echoes throughout the valley.

Each mile we cover seems to bring a new wonder. It may be a majestic waterfall, a towering peak, an overhanging cliff, a glacier sparkling under the rays of the winter sun, or a vast panorama of glittering snow and ice standing out in bold contrast against the dark rocks and forests. It takes my breath away, and I think of the Texas cowboy who had made his pile and had started out to see the world. His life had been spent on the plains, and at his first visit to these Canadian mountains their grandeur so filled his soul that, unable to contain himself, he threw his hat into the air and yelled:

In a region of beautiful lakes, the "Lake of the Hanging Glaciers" is one of the most picturesque in the Canadian Rockies. Behind it towers the snowy crest of Mount Sir Donald, some two miles high.

Wainwright National Park has the largest herd of buffalo in America. More than five thousand animals, the descendants of a herd of seven hundred originally purchased from a Montana rancher, range over a fenced-in reserve of one hundred thousand acres.

"Hurrah for God!"

One gets his first view of the mountains at Calgary. As we travelled through the foothills our train climbed steadily, and at Banff, eighty miles to the west, we had reached a height of almost a mile above sea level. The region about Banff has been set aside by the government as Rocky Mountain Park. It is known as the Yosemite Valley of the North, and has become the finest mountain resort of Canada. Here the Canadian Pacific Railway has built a magnificent hotel. It stands high above the confluence of the Bow and Spray rivers and affords a splendid view of Mount Assiniboine.

In summer the attractions at Banff include hot sulphur baths, open-air swimming pools, tennis courts, and golf links, and in winter there are snow carnivals and ski-jumping contests. The surrounding country offers mountain climbing of all kinds, from easy slopes for the inexperienced tenderfoot to almost inaccessible peaks that challenge the skill of the most expert climber. The region outside the park limits contains some of the finest game lands on the continent, and is a Mecca for the fisherman and the hunter.

In addition to the railway, Banff is reached by a ninety-mile motor road from Calgary. In 1923 this road was extended southwesterly across the Vermilion Pass to Lake Windermere in British Columbia. The construction of that stretch completed the last link in the "circle tour" motor route that now runs from Lake Windermere via Seattle to southern California, thence through the Grand Canyon and Yellowstone and Glacier National parks, and back to the Canadian boundary.

Thirty miles west of Banff, and almost six thousand

feet above the level of the sea, is the gem-like Lake Louise in its setting of dark forests and snow-clad mountains, and not far away is the famous Valley of the Ten Peaks. A few miles farther on we reach the Great Divide, which marks the boundary between Alberta and British Columbia. Here we see the waters of a single stream divide, one part going west to the Pacific and the other flowing to the east and eventually losing itself in Hudson Bay.

Between Calgary and the Great Divide the railway track climbs three eighths of a mile. It goes over the main range through the Kicking Horse Pass, more than a mile above sea level, and then drops down to the valley of the Columbia River. It rises again a quarter of a mile where it crosses the Selkirks through the five-mile-long Connaught tunnel, and then winds its way downward through the coast ranges to the great western ocean.

The Kicking Horse Pass was so named from an incident that occurred when the surveyors for the railway were searching for a route over the mountains. At this point one of the men was kicked by a pack horse and apparently killed. His companions had even dug a grave for him, but just then the supposedly dead man showed signs of life. He soon was fully recovered and the party proceeded onward. Later, his curiosity led him to revisit the scene of his narrowly averted burial, and in so doing he discovered this gap in the mountains.

The Kicking Horse was Canada's first, and for years its only, railway pass over the Rockies. The construction of the railway through it was considered a great feat of civil engineering, but it has been much improved. In 1909 two spiral tunnels were built for the descent to the Kicking Horse River, twelve hundred feet below. Here

the track, sloping downward, makes two almost complete circles inside the mountain, and the tunnels have so cut down the steep grade that the number of engines required for a train has been reduced from four to two.

Another line of the Canadian Pacific climbs over the mountains through the Crow's Nest Pass, not far north of the United States boundary. A third gateway to the ocean is the Yellowhead Pass, west of Edmonton, by which the Canadian National lines cross the Rockies. Beyond that pass the tracks branch out, one section ending at Prince Rupert and the other at Vancouver. The Yellowhead, though the lowest of the three passes, is under the very shadow of some of the loftiest of these mountains. Near it is Mount Robson, the highest peak in Canada, which rises in a mighty cone almost two miles above the surrounding range and more than thirteen thousand feet above the sea.

The Yellowhead route passes through Jasper Park, the greatest of Canada's western game and forest reserves. That park is almost four times the size of Rhode Island, and much larger than Rocky Mountain Park, which we saw at Banff. It contains the beautiful Lac Beauvert, on the shores of which a hotel and several lodges are operated by the Canadian National Railways. Mount Robson Park adjoins Jasper Park at the west, and farther south are Yoko, Waterton Lakes, and other great national playgrounds.

One of the most interesting of Canada's twelve Dominion parks is that at Wainwright, Alberta. I saw something of it on my way from Saskatoon to Edmonton. There a hundred thousand acres of land is fenced in as a reserve for the largest herd of buffalo in America. The seven hundred and six animals of the original herd were

purchased by the Canadian government from a Montana rancher. That was less than twenty years ago, but the herd increased so rapidly that it soon numbered between seven and eight thousand. This was more than could be provided for on the ranging grounds of the park, and it was found necessary to slaughter two thousand of the animals. Some of the meat was sold as buffalo steak, and the rest was dried and made into pemmican for the arctic regions. An animal called the cattalo, a cross between buffaloes and domestic cattle, which is noted for its beef qualities, has been raised in large numbers at the Wainwright Park.

When a transcontinental railway to the Pacific coast was first proposed, the objectors to the project sarcastically called British Columbia and western Alberta a "sea of mountains." To-day these same mountains, once considered merely an expensive barrier in the path of the railways, have proved to be one of the largest factors in building up what is said to be the fourth industry of Canada—its tourist traffic. The business of "selling the scenery" has been developed to such a degree that it is estimated that the national parks of the Dominion yield an annual revenue of twenty-five million dollars. In a year, more than one hundred thousand people travel over the C. P. R. route alone. It is interesting to note that eighty per cent. of them are Americans, and that there are more from New York City than from the entire Dominion of Canada.

The Canadian Pacific has for years led in exploiting the scenic wonders of Canada. It carries tourists over the mountains in summer in open observation cars, and adds to their comfort by using oil-burning locomotives on its passenger trains. It has a half dozen resorts in the Rockies where one may enjoy all the comforts of a modern

city hotel or the rugged pleasures of a wilderness camp. It has established a colony of Swiss mountaineers brought from the Alps to act as guides for mountain climbers. It has cut new trails through the country and has sent out geologists to map the unexplored territory.

Even the names of scores of peaks and valleys originated with the Canadian Pacific. Mount Sir Donald, one of the mightiest of the Selkirks, was so called in honour of Lord Strathcona, who was a power behind the building of the railway, and who drove the final spike uniting the east and west sections of the transcontinental line. Mount Stephen was named after the first president, and Mount Shaughnessy after a later one. The Van Horne Glacier in the Selkirks and the Van Horn Range have the same name as the famous builder of the Canadian Pacific, and Mount Hector was named after the intrepid explorer who discovered the Kicking Horse Pass.

Indeed, that railway has become so great a booster of the Dominion's natural show places that it has even been given credit for supplementing nature in the matter of scenery. The story is told of a woman who had just had her first view of the mighty crystal mass of the Illecillewaet Glacier towering thousands of feet above the railway. She stared in open-eyed and incredulous wonder. Then she exclaimed:

"It ain't real! The Canadian Pacific put it there for advertising!"

CHAPTER XXIX

THROUGH BRITISH COLUMBIA TO THE COAST

BRITISH COLUMBIA is the third largest province of the Dominion of Canada. It has an area as great as that of France, Italy, Belgium, and Holland combined. It extends from the United States boundary to Yukon Territory and Alaska, and, except for the northeastern section, it is all plateaus and mountains and valleys. The interior table-lands have an average elevation of three thousand feet. They contain some good farms and dairies, but the chief wealth of the province is in its forests, fisheries, and mines.

I have crossed this great territory often on my way westward, and have at times gone southward from Golden into the Kootenay country. This is far below the main line of the Canadian Pacific Railway. Another line of the Canadian Pacific crosses the region from the Crow's Nest Pass.

In the mighty hills of the Kootenays I saw the headwaters of the Columbia River. Its source is only a few hundred feet from the Kootenay River, which at this point is a good-sized stream. The Columbia flows north for one hundred and eighty miles, and then makes a sharp bend and turns to the south. The two rivers meet after each has completed about four hundred miles of its course, the parent stream of the Columbia crossing the United States border to the Pacific. Before meeting, the two rivers

wind in and out among the hills, now in narrow streams, and now in long, winding lakes that make one think of Como and Maggiore on the borders of Switzerland and Italy. They are walled in by peaks that rise almost straight up for hundreds of feet. Their waters are so clear that one can stand on the slopes high above them and see the fish swimming in the streams far below. The sides of the hills are covered with fir and tamarack, and their tops are often capped with snow.

The Columbia and the Kootenay, by their circling courses, have made a mighty island in the interior of British Columbia. If you will imagine two gigantic wish bones, the tips of which are touching each other, enclosing a diamond of mountainous land larger than the state of Ohio, you will have an idea of the curious formation that Nature has created here. A short canal that connects the two rivers near the headwaters of the Columbia makes the island complete. The valleys of these two streams, containing a million acres or so, are growing in importance as a mixed farming, fruit growing, and dairying region.

The Kootenay country has also some of the richest mineral deposits of the Rockies. It has gold, silver, copper, coal, iron, and lead. The coal deposits near the Crow's Nest Pass are said to contain thousands of millions of tons, and near them are thousands of coke ovens blazing away. Not far distant are deposits of hematite ore, upon which the Canadians may some day build up a big iron and steel industry.

Coming farther on into British Columbia, I took a steamer through Kootenay Lake and stopped at the town of Nelson, which is in the heart of the mining country. There I talked with one of the men who opened up some

of the big silver and lead deposits more than two score years ago. Said he:

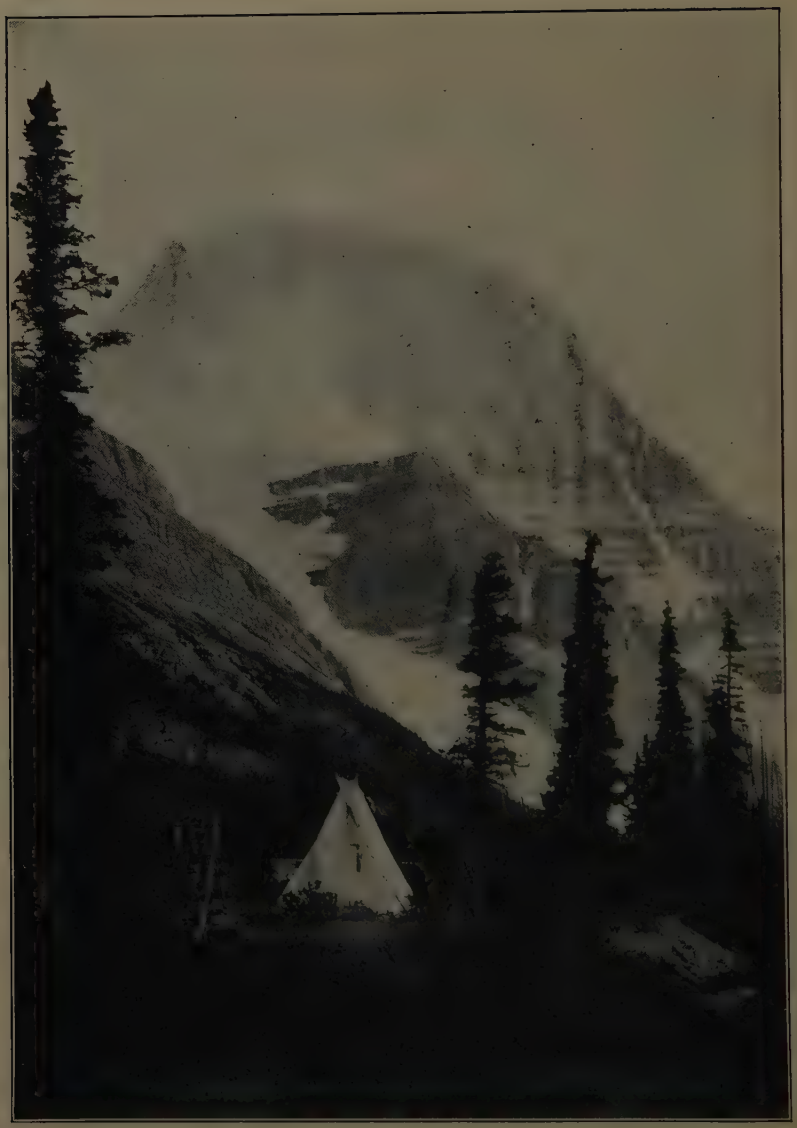
"There had been a rush to this region, and I came in with five other prospectors. When we got to the camp I suggested that our party see what we could find in a mountain across the valley. We set out with only two days' provisions. Almost as soon as we started up the hill we struck some float rock that showed signs of silver and lead, and on the following day we discovered a great mass of galena, which was from twenty-five to thirty feet wide. There were boulders of lead ore close by, and we at once staked out our mine. It proved to be a rich one, and was eventually sold for more than a million dollars."

This whole region is a treasure house of minerals. Mining operations were carried on for years near Phoenix in one of the biggest copper beds of the world. The metal lay in a great mass two hundred feet wide and more than a half mile in length.

The millions of tons of ore taken from the Phoenix mines were fed into the smelter at Grand Forks, which stands on the banks of the Kettle River, shadowed by mighty mountains. For years it annually produced millions of pounds of copper, and in addition silver and gold worth a million dollars or more. The smelter was closed in 1919 with a record of having smelted fourteen million tons of ore, and the mines ceased operations that same year.

In the meantime, the Granby Company, which owned the mines and the smelter, had begun to take copper out of the Le Roi mine at Rossland, a few miles to the east. Shafts there have been sunk more than two thousand feet into the earth, and there are about ninety miles of underground workings. This same company, which is owned

The Canadian Rockies, with three hundred peaks more than ten thousand feet high, offer thrills aplenty for even the most seasoned mountain climber. Alpine guides have been brought here from Switzerland and have established a colony in British Columbia.



The line of the Canadian National Railways through Yellowhead Pass, the lowest gap in the Canadian Rockies, lies near Mt. Robson, 13,068 feet high, and the tallest peak in all the Dominion.

largely by American stockholders, operates the Hidden Creek copper mines at Anyox, the biggest in British Columbia. They are located on the coast near the Portland Canal, hundreds of miles to the northward and only a short distance from Alaska. In one year they produced thirty million pounds of copper. Other mines are worked on Vancouver Island and on Howe Sound north of the city of Vancouver.

Although the deposits of the Boundary District have been practically worked out after yielding twenty million tons of copper ore, British Columbia still has more than half the copper output of the Dominion. Its total annual mineral production is worth more than six hundred million dollars. Of this, coal and coke make up about one third. Silver, lead, zinc, and platinum are also mined.

Gold was first discovered in British Columbia on the Fraser River. That was around 1857, just as the California placers had begun to play out, and thousands of prospectors rushed here from our Pacific coast. Many fortunes were made in a single season, and by 1863 the placer mines had an annual yield of more than three million dollars' worth of gold. The total production to the present time has been valued at more than seventy-five million dollars.

All of this gold was recovered by the pick and shovel and without the aid of machinery. Hydraulic mining was not introduced until the easily accessible gold had been washed out by primitive methods. The lode mines were not worked to any extent until 1893, but these are now producing more than the placers.

Northwest of the Boundary District we take a flying trip through the Okanagan Valley, famous as a fruit-grow-

ing region. Apples from here are shipped all over the Dominion. They are sold three thousand miles away in eastern Canada in competition with those grown in the Annapolis Valley in Nova Scotia. The region has been developed largely through irrigation, and as we travel through it the green of the watered areas stands out in sharp contrast to the sun-baked dry lands of the hills. British Columbia has forty thousand acres in fruit, and it ships more than a million boxes of apples a season. The interior valleys have been found to be well adapted to raising peaches, plums, grapes, and small fruits as well.

The chief city of British Columbia, as well as Canada's most important Pacific port, is Vancouver. It is beautifully situated on Burrard Inlet on a site discovered in 1792 by Captain John Vancouver. In 1865 a lumber mill was started on the inlet and a settlement grew up here. About twenty years later the town was entirely destroyed by fire, so that the city of to-day was really founded in 1886.

Vancouver is about the same size as Omaha, and is the fourth largest city of the Dominion. It is the terminal of the Canadian Pacific and Canadian National railways, and of several roads from the States. It has steamship lines to Hawaii and China and Japan and also to the Philippines, Australia, and New Zealand. There are coast lines to Seattle, Victoria, Prince Rupert, and Alaska.

Let us go for a motor ride about the city. The Vancouver climate is warmer and more moist than that of the south of England, and flowers can be seen blooming in the gardens all the year round. On Shaughnessy Heights are the beautiful homes of Vancouver's millionaires, and farther out is Stanley Park. Here, overlooking the Narrows through which the ships enter the harbour, are thousands

of giant cedars and Douglas firs, some of them one hundred and fifty and two hundred feet high.

We find Vancouver's commercial districts busy and crowded. At the wharves we see twenty ocean steamers loading lumber to be carried to all parts of the world, and learn that sixteen million feet are shipped from here in one month. Vancouver is increasing in importance as a wheat-shipping port. It sends a million bushels or more to the Orient, and twice as much to Europe by way of the Panama Canal.

Eighty miles across the Strait of Georgia from Vancouver is Victoria, British Columbia's capital, noted for the architectural beauty of the provincial government buildings. It lies at the southern end of Vancouver Island, overlooking the Strait of Juan de Fuca and the snow-capped Olympic Mountains on the mainland. It is considered one of the most English of Canadian cities, not only in climate and aspect, but in the customs and traditions of its residents. It is the site of the Dominion Astrophysical Observatory, one of the largest of its kind in the world.

CHAPTER XXX

PRINCE RUPERT

I AM at the north terminal of the Canadian National Railways and the port of the shortest Pacific route to the Orient. Prince Rupert is located on an island in a beautiful bay five hundred miles north of Vancouver and only thirty miles south of our Alaskan boundary. Its harbour is open all the year round. It is fourteen miles long, is sheltered by the mountains and islands about it, and large enough for all the demands of travel. The town reminds me of Jaffa, the port of Jerusalem. It is right on the sea, and the buildings climb up and down the mountains of rock close to the shore. The chief difference is that the hills of Jaffa are bleak and bare, while those of Prince Rupert are wooded and clad in perpetual green.

Until 1912, when the Grand Trunk Pacific Railway, now a part of the Canadian National lines, chose this point for its western terminus, this place was a forest. Pines and cedars covered the mountains above, and the stumps still rising out of the vacant lots look like the black bristles of an unshaven chin. The town has several thousand people, and I venture it has thousands of stumps. They are rooted in the crevices of the rock, and the ground between them is matted with muskeg, which holds water like a sponge and makes it impossible to go across country without thick boots or rubbers.

The muskeg was one of the difficulties that had to be

Southern British Columbia is a land of winding rivers and lakes, towering mountains and sheltered valleys. Many of the little cities along the Columbia and the Kootenay have been settled largely by Britishers.

Apples from the irrigated orchards of the Pacific slope are sold in eastern Canada, three thousand miles away, in competition with the famous Nova Scotia fruit. British Columbia often ships a million boxes of apples a season.

Victoria, in its appearance, its climate, and its people, is like a section of the south of England transplanted to Vancouver Island. It is noted for the beauty of its location and for its handsome provincial parliament buildings.

overcome in laying out and building the city. Another and still greater difficulty was blasting the hills. Every bit of the town is founded on bed rock, and many places have had to be levelled with dynamite for the business streets and foundations of buildings. The streets in the residential section are paved with three-inch planks. They look like continuous bridges, but they are substantial enough for heavy teams, motor trucks, and automobiles. In some places the planks are spiked to trestle-work from ten to fifteen feet high, and in others they lie on the rock. The steep hills that extend back to the wooded mountains behind Prince Rupert are so rough that to cut roads through them would bankrupt the city many times over.

It was in company with a member of the board of trade and the civil engineer who laid out Prince Rupert that I took an automobile ride through the town. The plank roads are so narrow that turning-out places have been built at the cross streets and curves, and the inclines are so steep that we had all the sensations of a giant roller-coaster as we dashed uphill and down. I expected a collision every time another car passed. Now we shot around a curve where a slight skidding might have hurled us into a ravine; and now climbed a hill where the trestle-work trembled beneath us. We rode for some distance through "Lovers' Lane," a part of the ninety acres of forest in the public park, and later climbed the steep slope of Acropolis Hill.

On top of Acropolis Hill we inspected the city's water-works. The supply is carried to a reservoir here from Lake Woodworth, five miles away. The reservoir, which has been dug out of the rock, contains a million gallons of water more than the regular needs of the city.

On another part of the hill are the municipal tennis courts and baseball park. The tennis courts are made by laying a level plank floor upon the uneven surface of the rocks, and erecting about it fences of wire netting so high that the balls cannot possibly fly over and roll down the steep slopes of the mountain. The ball park was blasted out of the rock. It is so situated that the hills about it form a natural grandstand, and consequently admission is free. The players are paid by passing the hat.

We have a good view of Prince Rupert from Acropolis Hill. In front of us is the harbour, sparkling in the sunlight and backed by mountainous islands of green. Behind us are forest-clad hills, lost in the clouds, and below is the city, connected with the mainland by a great bridge of steel. The business section is made up of two- and three-story frame buildings, painted in modest colours. Here and there the spire of a church rises above the other roofs; and should you take your spyglass you might pick out the signs of banks, stores, and real-estate offices.

There are many comfortable one- and two-story wooden cottages rising out of the muskeg. The people have blasted out the stumps in making the foundations for their homes, and some have brought earth and stones and built up level yards with lawns as green and smooth as those of old England. All kinds of vegetation grow luxuriantly. There are many beautiful flowers, and the town is green from one end of the year to the other.

The climate here is milder than in Baltimore, Richmond, or St. Louis. The mean temperature in summer is about sixty degrees Fahrenheit, and in winter the thermometer seldom falls below eight or ten above zero. There is but little snow in the winter. The rainfall reminds me

of that of southern Chile, where they say it rains thirteen months every year. Because of the dampness the frosts are heavy, and they sometimes cover the roads to a depth of three inches. Then the people have tobogganing parties on these roller-coaster highways.

Prince Rupert started with a boom. The town was planned and partially developed before a single lot was offered for sale. The Grand Trunk Pacific Railway decided upon the site, named it after the first governor of the Hudson's Bay Company, who was the nephew of Charles I, and sent its engineers to clear the land, level the hills, and lay out the city. The railway owned twenty-four thousand acres of land and the first sub-division covered one twelfth of that area. The future city was advertised, and auctions were held in Victoria and Vancouver. The first lots brought high prices, and the boom continued until the war halted its progress.

The inhabitants believe this city will become a great port and that it will some day have a population of one hundred thousand or more. With a view to the future, the city has built the largest floating dry dock on the Pacific coast. It has cost more than three million dollars and will accommodate ships up to six hundred feet in length and twenty thousand tons capacity. Nearly three thousand vessels enter the harbour in a year, and this number is on the increase.

Prince Rupert lies so far north on the globe that it is five hundred miles nearer Yokohama than are Vancouver and Seattle. Moreover, the journey from western Canada to Europe is shortened by the railroad route from here to the Atlantic. England is only about four days from Halifax. The Canadian National runs from there to this port in one

continuous line across the continent. It crosses eastern Canada far north of the Great Lakes and from Winnipeg goes through the wheat belt to Edmonton. It climbs the Rockies by easier grades than any other road. It has short cuts by various connections to all the United States cities, and it promises to be the fast freight route for perishable products between Alaskan waters and the rest of the continent.

The city is two days nearer Alaska by steamer than are the Puget Sound ports, and travellers from the eastern parts of Canada and the United States can reach there that much sooner by coming here over the Canadian National.

The fisheries of British Columbia are the most valuable in the Dominion. Prince Rupert has become one of the fishing centres of the Pacific and the chief halibut port in the world. It has thirty-five canneries and seven large cold storage plants, and scores of steam vessels, sailing boats, and gasoline launches go back and forth between here and the fishing grounds. About fifty American vessels land their catches at this port every week, and every train that goes eastward over the railway carries carloads of fresh fish to the cities of the United States.

Halibut are caught for nine months of the year, twenty million pounds being landed here in a single season. The moment they are taken from the sea they are packed in ice for shipment or put into cold storage. I am told that the fish can be kept perfectly fresh for a month by the present method of packing. During the summer as many as a half dozen carloads are shipped in one day. More than a quarter of a million pounds were recently sent to New York and Boston in a single trainload.

Prince Rupert has miles of streets made of planks, upheld by trestle work, or resting on the rock underlying the city. Most of the streets and building sites were blasted by dynamite from the sides of the mountains.

British Columbia leads all Canada in the value of its fisheries, of which Prince Rupert is the centre. More halibut is brought here each season than to any other port in the world.

The animals, birds, and fish surmounting the totem poles are the family crests indicating the different branches of an Indian tribe at Kitwanga, not far from Prince Rupert. The poles number a score or more, and some are a hundred feet high.

The chief salmon fisheries of the Pacific coast are farther north in Alaska, but nevertheless British Columbia's catch is worth ten million dollars a year. At Vancouver I saw the fleets of salmon trawlers in the mouth of the Fraser. There are many salmon fisheries near the mouth of the Skeena, not far from Prince Rupert, and forty per cent. of all the salmon packed in the province is put up in this city. The fresh fish are shipped only during the summer months, but they are exported in a frozen state from the cold storage plants throughout the winter.

CHAPTER XXXI

BY MOTOR CAR THROUGH THE WILDERNESS

I HAVE come into the Yukon Territory from Alaska. The trip from the land of Uncle Sam to that of John Bull was made over the route followed by thousands of gold seekers in the first great Klondike rush in the winter of 1897, when the prospectors made their way on foot over that frozen pass. It is now summer, and I have come from Skagway to White Horse, where I am now writing, on the White Pass Railway.

My first journey into the interior of the Yukon has been a motor trip of a hundred miles on the overland trail that runs from here to Dawson. The car was of American make, the chauffeur was "Caterpillar Ike," and the time was yesterday from midday to midnight. We dashed through virgin forests, climbed mountains, flew around dizzying curves, and skidded along narrow cliffs until my heart was in my throat but my soul was full of thrills.

The overland trail begins at White Horse and runs through the wilderness for a distance of three hundred and fifty miles to Dawson at the mouth of the Klondike. It is more than one hundred miles shorter than the river trip to the gold mines, and it is used to carry mail, passengers, and freight during the cold winter months when everything in this region is locked tight by Jack Frost.

The road through the forest climbs over ranges of

mountains, winds its way through the valleys, and crosses swamps, bogs, and sloughs of mud that sticks like cement. In many parts of its course it twists about like a corkscrew, as though the surveyors had laid their lines along the trail of a rabbit, and a drunken rabbit at that. Here it is bedded on rock, and there it half floats on a quicksand covered with corduroy logs. In the spring of the year the six-horse teams of the mail stage are often mired to their bellies, and have to be lifted from the waxy clay by a block and tackle attached to the trees.

My ride over the trail took me as far as the crest of the range beyond Little River, whence I returned to White Horse to go down the Yukon by steamer. The motor trip was a moving picture of the wonders of nature. On each side of the roadway the country is the same as it was when Columbus discovered America; it is the same as when the Scandinavian navigators drifted down our coast about 1000 A. D.—yes, I venture, the same as it was when old Cheops built his great pyramid on the banks of the Nile. With the exception of several log huts where meals are served to travellers, there were no signs of human habitation, and aside from the roads, old and new, not one mark of human labour. We were in no danger of meeting other machines or farm wagons, although we might have run down a covey of birds instead of the usual chicken, or a fox or a bear in place of a dog. At one time a lynx leaped across the trail in front of our machine, and later a great flock of grouse passed over our heads with a whirr. I am told that hunters sometimes bag a good lot of birds on this route by shooting them from automobiles.

All sorts of animal tracks were to be seen as we rode

over the trail. The woods are full of bears, brown and black, caribou in great numbers, and wide-antlered moose. There are foxes and lynx and millions of rabbits. We passed groves of small trees, every one of which had been killed by the rabbits. They had eaten the bark off during the winter, beginning when the snow was two or three feet in depth and biting it away inch by inch as the snow melted, until a belt of white a yard wide girdled each tree. The bark above and below was dark green or brown, and the white shone out like ivory. Beavers and muskrats abound in the streams, and there are many kinds of squirrels, as well as gophers, that burrow like moles under the roadway. We crossed many such burrows, our motor car hitting them with a bump that shot us from our seats, so that our heads struck the top.

Upon starting from White Horse we were told of a narrow escape from a bear that one of the railroad clerks had had only the night before. This man had gone out to a lake in the woods about five miles away and made a good catch of fish. He was riding home on his bicycle when a big black bear rushed out of the forest and upset him. Fortunately, he fell near a dead root. He seized this as he jumped up, and hit old Bruin a blow on the snout. Then, before the bear had time to recover, he mounted his bicycle and sped away. But the bear got the fish.

Our first stop was twenty-two miles from White Horse, at the Tahkeena road house, on the Tahkeena River, where there is a famous Irish cook, Jimmy. The road house is built of logs and heated by a stove made of a hundred-gallon gasoline tank. The tank lies on its side, resting on four legs made of iron pipe. A stovepipe is

fitted into the top and a door is cut in one end. The result is an excellent heating device, and one that is common in many parts of Alaska and the Klondike. We got a snack at this road house on our first stop and had an excellent dinner there on our return.

We crossed the Tahkeena River on a ferry boat attached to a cable worked by the current. We then rode on through a parklike country, spotted with groves of pine trees, each as high as a three-story house, as straight as an arrow, and, branches and all, no bigger around than a nail keg. I cannot describe the beauty of these trees. Where they were thick we rode for miles through walls of green twenty or thirty feet high, and in places where the trees had been burned by forest fires the walls were of silver, the dead branches having been turned to the most exquisite filigree.

The trees here are like those of most parts of interior Alaska. They grow in the thin soil, nowhere more than six inches or so deep, which is underlaid by strata of earth that have been frozen for thousands of years. The moss on the top of the soil acts as an insulator and keeps the ice from melting except on the surface. The roots go down to the ice and then spread out. When a tree dies one can easily pull the stump out, roots and all, and throw it aside. The overland trail was cleared in this way, and the sides of it are fenced with piles of such trees.

We are accustomed to think of this part of the world as all snow and ice. That is so in winter, but in summer the whole country is as spotted with flowers as a botanical garden. During our ride we passed great beds of fireweed and motored for miles between hedges of pink flowers, higher than the wheels of our automobile. The

woods that had been swept by forest fires were dusted with pink blossoms, and in the open spaces there was so much colour that it seemed as though Mother Nature had gone on a spree and painted the whole country red. In one open place where we stopped to put on a new tire, I picked nineteen varieties of wild flowers. Among them were roses of bright red, and white flowers with petals like those of a forget-me-not. There were also blue flowers the names of which I do not know, and daisies with petals of pink and centres as yellow as bricks of Klondike gold.

The mosses were especially wonderful. One that looked like old ivory grew close to the ground in great patches. It reminded me of the exquisite coral of Samoa and the Fijis. I am told that this moss is the favourite food of the reindeer, and that the caribou paw their way down through the snow to get it. Another curiosity found here is the air plant. I have always thought of orchids as confined to the tropics, but in this part of the world are polar orchids, great bunches of green that hang high up in the trees.

The character of the country varied as we went onward. Now our way was across a rolling plain, now the road climbed the hills, and again it cut its way through the mountains. At one break in the hills we could see the Ibex Range, with glaciers marking its slopes, and its peaks capped with perpetual snow. In other places the mountains were as green as the hills of the Alleghanies, and they had the same royal mantle of purple. Just beyond the Tahkeena River we rode through a valley walled with mountains from which the earth had been torn by a cloudburst a few years before. The faces of the green hills were covered with clay-coloured blotches and they

looked as though they had been blasted by leprosy or some earthy plague.

We crossed one little glacial river after another, and rode through valleys that are covered with ice in the winter and become soup sloughs in the spring. A great part of the way was over what is known as glacial clay. This clay is solid when dry, but when moist it has the consistency of shoemakers' wax and, like a quicksand, sucks in anything that goes over it. A railroad track built on it and not well protected by drainage may disappear during a long rainy season.

The labour of keeping the overland trail in order reminds one of that of Hercules cleaning the Augean stables. The road bed has had to be filled in and remade again and again. The route is changed from year to year. Now and then we passed an old roadway that had become so filled with boulders that a man could hardly crawl over it. This region had no rain for three months until day before yesterday, when enough fell to change the whole face of Nature, and make this glacial clay like so much putty. Our automobile weighed more than two tons, and we had to go carefully where there was any doubt as to the condition of the clay. At one wet spot we found ourselves down to the axles, with the wheels held fast in the mud. We had brought with us an axe and a long-handled shovel for use in just such an emergency. We cut down trees and made a bed of branches in front of the car. A pine track was put under the wheels and a pine tree used as a lever to aid the jack in getting the car out of the mud. It took us about two hours to dig the machine from the clay and get it on the firm road bed. After that when we came to soft clay we turned out and sought new roads through the

grass or rushed over the wet spots to prevent the car from sinking.

The overland trail is used almost altogether during winter, although the Canadian government keeps it in such a condition that it is fit for travel in summer. It is, on the whole, better than most of Uncle Sam's roads in Alaska, and in the winter makes possible a regular mail service into the Klondike. The freight and the mail are carried on great sleds hauled by six horses, with relays at the various road houses. Each house has stables for the horses and at some of them there are sleeping accommodations for passengers.

At the Tahkeena road house I saw a great stack of horse feed that had been brought up the Tahkeena and cached there for the winter, and at the Little River road house I saw one of the sleds used for carrying foodstuffs and other perishables into the Klondike during the cold season, when the thermometer may fall to seventy degrees below zero. The sled was a covered one, large enough to carry three or four tons. It was so arranged that carbon heaters could be placed in troughs around its bed. These heaters keep the tightly covered load from freezing. Such sleds are drawn by four or six horses, according to the state of the roads.

The Canadian government has already spent a great deal on this road, and its upkeep costs thousands of dollars a year. Within the last few years the trail has been much improved for the use of automobiles. The first time an automobile road was proposed many people scoffed at the idea and said that it could not be done. The matter came up before the Parliament at Ottawa and was discussed pro and con. An appropriation of fifty thousand

Built at the height of the Klondike gold rush, the White Pass Railway transported thousands of prospectors and millions of dollars' worth of gold during the first few years of its existence. It is one hundred and eleven miles long and connects Skagway with White Horse.

For more than half the year the Yukon River is covered with ice, and then mail, freight, and passengers for the interior are carried on sleds by way of the Overland Trail from White Horse to Dawson.

"Our first stop was at the Tahkeena roadhouse, famous for its Irish cook. It stands on the banks of the Tahkeena River, which we crossed on a ferry."

dollars had been asked. The objections made were that automobiles could not be run in the low temperature of the Yukon, and that the road was so rough that the machines could never make their way over it.

This discussion occurred in the midst of the winter, and while it was going on the Honourable George Black, who was then Commissioner of Yukon Territory, decided to show parliament that the undertaking was practicable. He made an arrangement with C. A. Thomas, the resident manager of the Yukon Gold Company at Dawson, to take a forty-horse-power automobile over the trail. With a chauffeur, the two men left Dawson when the road was covered with snow and the thermometer far below zero. The long winter nights were at hand and the sun shone only an hour or so every day. The darkness was conquered in part by a locomotive headlight on the front of the car.

The trip to White Horse and return was made within fifty-six hours, of which thirty-six hours was actual running. The distance of seven hundred and twenty miles was covered at an average speed of twenty miles an hour for the running time of the round trip. During the journey the thermometer fell to fifty-six degrees below zero, but the air was dead still, and wrapped up as they were in furs, the men did not realize how cold it was until they came to a road house and read the thermometer.

It was necessary to keep the machine going continuously, for during a stop of even a few minutes the engine would freeze and the oil congeal. At one time their gasoline gave out and they had to stop twenty miles away from a road house they had expected to reach. A dog team was found and sent on to the road house, but while they

waited the engine froze and the oil became stiff, and they had to build a fire under the car with wood from the forest before they could start off again. When they had completed the journey and returned to Dawson the bill for the road appropriation was just coming up for action. The news of their trip was telegraphed to Ottawa and the bill was passed.

CHAPTER XXXII

FROM WHITE HORSE TO DAWSON

WITHIN the last fifteen days I have travelled by foot, by rail, and by steamer from the headwaters of the Yukon to Dawson, a distance of five hundred miles. The river has one of its sources in the coast range of mountains only fifteen miles from the Pacific Ocean. It starts as a trickling stream of icy cold water and winds its way down the hills to Lake Bennett. On the White Pass Railway I rode twenty-five miles along the east shore of that lake to Caribou, and thence for an hour or so farther to White Horse. That town is at the head of steam navigation on the Yukon, from where one can go for more than two thousand miles to the mouth of the river on Bering Sea, not far from the Arctic Ocean.

The Yukon makes one think of Mark Twain's description of the Mississippi, which he knew so well as a pilot. He said: "If you will peel an apple in one long paring and throw it over your head, the shape it will have when it falls on the floor will represent the ordinary curves of the river."

Let me take you with me on my trip down this looping river. In its upper reaches, it winds about like a snake. It narrows and widens, now measuring only a few hundred feet from shore to shore, and now almost as broad as a lake. It is full of sand banks, and there are rocky cañons

through which our boat shoots, its sides almost grazing the cliffs.

Our ship down the Yukon from White Horse is the little steamer *Selkirk*, drawing between four and five feet of water. Nevertheless, it is so skilfully handled that it twists and turns with the current and at times swings about as though on a pivot. Now the pilot throws the boat across the stream and lets the current carry it along, and now he drives it through the rapids, putting on steam to make the paddles go faster.

In addition to the boat itself we have a great barge to care for. Most of the freight that goes down the Yukon is carried on barges pushed along in front of the steamers. The load of to-day consists largely of cattle. The barge is enclosed in a high board fence, within which are eight cow pens, with a double-deck sheep-fold at the back. There are one hundred and fifty beef cattle in the pens and two hundred live sheep in the fold. The animals were brought by rail from Calgary to Vancouver. There they were loaded on a Canadian Pacific steamer and carried through the thousand miles of inland waterways that border the west coast of the continent to Skagway. They were then taken over the mountains on the White Pass Railway, and are now on their way to Dawson, where they will be transferred to another steamer that will push them a thousand or fifteen hundred miles more down the Yukon.

The freight charges are so heavy that the animals selected must be of a high grade. The steers average three fourths of a ton and several of them weigh close to two thousand pounds each. They were raised on grass and are now fed on the bales of alfalfa piled around the edge of the barge.

From White Horse, at the head of navigation on the Yukon, during the open season from June to October one can travel by steamer down that river for two thousand miles to Nome on Bering Sea.

A wood-burning heating stove common throughout Alaska and the Yukon is made from a gasoline tank turned on its side and fitted with legs of iron pipe.

We have other live stock on board. Down in the hold are eight hundred chickens bound for the hen fanciers of interior Alaska. They crow night and morning, and with the baaing of the sheep and the mooing of the cattle we seem to be in a floating barnyard. The barge is swung this way and that, and whenever it touches the bank, the sheep pile up one over the other, some of the cattle are thrown from their feet, and the chickens cackle in protest.

The *Selkirk* burns wood, and we stop several times a day to take on fuel, which is wheeled to the steamer in barrows over a gangplank from the piles of cord wood stacked up on the banks. At many of the stops the only dwelling we see is the cabin of the wood chopper, who supplies fuel for a few dollars a cord. The purser measures with a ten-foot pole the amount in each pile loaded on board. Going down stream the *Selkirk* burns about one cord an hour, and in coming back against the current the consumption is often four times as much. The wood is largely from spruce trees from three to six inches in diameter. Many of the little islands we pass are covered with the stumps of trees cut for the steamers, but most of the wood stations are on the mainland, the cutting having been done along the banks or in the valleys back from the river.

Except where we take on fuel there are no settlements on the Yukon between White Horse and Dawson. The country is much the same as it was when the cave dwellers, the ancestors of the Eskimos, wrought with their tools of stone. For a distance of four hundred and sixty miles we do not see a half dozen people at any stop of the steamer, although here and there are deserted camps with the abandoned cabins of prospectors and wood choppers.

One such is at Chisana, near the mouth of the White River. The town was built during the rush to the Chisana gold mines, and it was for a time a thriving village, with a government telegraph office, a two-story hotel, and a log stable that could accommodate a dozen horses and numerous sled dogs. The White Pass and Yukon Company built the hotel and the stable, expecting to bring the miners in by its steamers and to send them into the interior with horses and dogs. It did a good business until the gold bubble burst and the camp "busted." To-day the Chisana Hotel is deserted, all the cabins except that of the wood chopper are empty, and under the wires leading into one of them is a notice: "Government telegraph, closed August 3, 1914."

The woodman's cabin is open. A horseshoe is nailed over the door and a rifle stands on the porch at the side. On the wall at the back of the hut a dog harness hangs on a peg. The skin of a freshly killed bear is tacked up on one side, and bits of rabbit skins lie here and there on the ground. The cabin itself is not more than eight feet in height. It is made of logs, well chinked with mud and with earth banked up about the foundation. There is a weather-strip of bagging nailed to the door posts. The door is a framework filled in with pieces of wooden packing boxes for panels.

Entering, we find that there are two rooms. One is a kitchen, and the other a living room and bedroom combined. Three cots, made of poles and covered with blankets, form the beds. There are some benches for seats and a rude table stands under the window. Various articles of clothing hang from the walls or lie upon the floor. In the kitchen a table is covered with unwashed

dishes. There is a guitar on the shelf near the stove and a pack of cards on a ledge in the logs. The whole is by no means inviting, but I doubt not it is a fair type of the home of the prospectors and woodsmen throughout this whole region.

I have seen most of the great rivers of the world--the Rhine, the Danube, the Volga, the Nile, the Zambesi, the Yangtse, and the Hoang Ho. I know the Hudson, the Mississippi, the Ganges, the Indus, and the Irrawaddy, as well as the Amazon and the Parana, and many other streams of more or less fame. But nowhere else have I seen scenery like that along the Yukon. We seem to have joined the army of early explorers and to be steaming through a new world. We pass places

> Where the mountains are nameless,
> And the rivers all run God knows where.

Much of the country is semi-desert, but some of it is as green as the valley of the Nile. In places the hills, sloping almost precipitously back from the river, are wrinkled with dry waterways filled with scrubby forests. In others there are series of ledges rising one over the other, making great terraces from the edge of the stream to the tops of the mountains.

The Yukon changes its course like the Yellow River of China. Now we pass through gorges of silt where the sand walls rise above us to the height of a twenty-story office building; and now swing around beds where we seem to be walled in by the cuttings made by the water. The hills are composed of earth washings, and from year to year the snaggy teeth of old Father Time have been gouging long furrows out of their sides. These furrows have

caught the moisture, forests of small evergreens have grown up in them, and the landscape for miles looks as though it had been ploughed by the gods and drilled in with these crops of green trees. This makes the country, when seen from a distance, seem to be cultivated. There is a scanty grass between the patches of forests, and the whole is like a mighty farm planted by the genii of the Far North.

As we go down the river the scenery changes. Here the banks are almost flat and are covered with bushes. There on the opposite side they are of a sandy glacial alluvial formation, perfectly bare. At times the soil is so friable that it rolls down in avalanches, and a blast from our steam whistle starts the sand flowing. It makes one think of the loess cliffs on the plains of North China. Those cliffs contain some of the richest fertilizing matter on earth, and their dust, carried by the wind, enriches the country upon which it drops as the silt from the Abyssinian highlands enriches the Nile Valley.

The soil from the upper Yukon, on the other hand, is poorer than that which surrounds the Dead Sea at the lower end of the Jordan. It lacks fertilizing qualities, and some of it rests on a bed of prehistoric ice, which carries off the rainfall, leaving no moisture for plant life. A geological expert in our party says it is as though the land were laid down on plates of smooth copper tilted toward the valleys to carry the rain straight to the rivers. He tells me that the region has only ten or twelve inches of water a year, or a rainfall similar to that of California in the neighbourhood of Los Angeles. He says also that sixty-five per cent. of the water that falls finds its way to the streams.

The upper Yukon River in places is only a few hundred feet from bank to bank, and in others as wide as a lake. Throughout most of its length it is dotted with islands in all stages of formation.

The Yukon twists and turns in great loops and curves throughout its entire length, and at Five Finger Rapids presents a stretch of water that can be navigated only by the exercise of the utmost skill in piloting.

Much of our way down the Yukon is in and out among islands. The stream is continually building up and tearing down the land through which it flows, and the islands are in every stage of formation. Here they are sand bars as bare as the desert of Sahara; there they are dusted with the green of their first vegetation. A little farther on are patches of land with bushes as high as your waist, and farther still are islands covered with forest. Each island has its own shade of green, from the fresh hue of the sprouts of a wheatfield to the dark green mixed with silver that is common in the woods of Norway and Sweden. Not a few of the islands are spotted with flowers. Some from which the trees have been cut are covered with fireweed, and a huge quilt of delicate pink rises out of the water, the black stumps upon it standing out like knots on the surface. Such islands are more gorgeous than the flower beds of Holland.

In places the Yukon is bordered by low hills, behind which are mountains covered with grass, and, still farther on, peaks clad in their silvery garments of perpetual snow. At one place far back from the river, rising out of a park of the greenest of green, are rocky formations that look like castles, as clean cut and symmetrical as any to be seen on the banks of the Rhine. Down in the river itself are other great rocks, more dangerous than that on which the Lorelei sat and with her singing lured the sailors on to their destruction.

One such formation is known as the "Five Fingers." It consists of five mighty masses of reddish-brown rock that rise to the height of a six-story building directly in the channel through which the steamers must go. The current is swift and the ship needs careful piloting to keep it

from being dashed to pieces against the great rocks. The captain guides the barge of cattle to the centre of the channel. He puts the barge and the steamer in the very heart of the current and we shoot with a rush between two of these mighty fingers of rock down into the rapids below. As we pass, it seems as though the rocks are not more than three feet away on each side of our steamer.

A little farther on we ride under precipices of sand that extend straight up from the water as though they were cut by a knife, with strata as regular as those of a layer cake. They seem to be made of volcanic ash or glacial clay. They rise to the height of the Washington Monument and are absolutely bare of vegetation, save for the lean spruce and pine on the tops.

We pass the "Five Fingers" between one and two o'clock in the morning, when the sun is just rising. This is the land of the midnight sun, and there are places not far from here where on one or two days of the year the sun does not sink below the horizon. Even here, at midnight it is hard to tell sunrise from sunset. There is a long twilight, and the glories of the rising and the setting sun seem almost commingled. At times it has been light until one o'clock in the morning, and I have been able to make notes at midnight at my cabin windows.

There is a vast difference between this region and the rainy districts near the Pacific coast. We have left the wet lands, and we are now in the dry belt of the great Yukon Valley. The air here is as clear as that of Colorado. The sky is deep blue, the clouds hug the horizon, and we seem to be on the very roof of the world, with the "deep deathlike valleys below." We are in the country of

Robert Service, the poet of the Yukon, and some of his verses come to our minds:

I've stood in some mighty-mouthed hollow
That's plumb-full of hush to the brim;
I've watched the big, husky sun wallow
In crimson and gold, and grow dim,
Till the moon set the pearly peaks gleaming,
And the stars tumbled out, neck and crop;
And I've thought that I surely was dreaming,
With the peace o' the world piled on top.

CHAPTER XXXIII

THE CAPITAL OF THE YUKON

I WRITE of Dawson, the capital of Yukon Territory, the metropolis of the Klondike, and for years the richest mining camp of the world. In the height of its glory it had more than thirty thousand inhabitants, and in the region about there have been more than sixty thousand people. To-day the population of the town is less than one thousand. With the gradual exhaustion of the gold the population is decreasing, and it may be only a question of years when the precious metal will all have been taken from the ground and the chief reason for a city here will have disappeared. One of the great hopes of the people is in the discovery of rich quartz mines or the mother lode from which all the loose gold came. The hills have been prospected in every direction, but so far no such find has been made.

Dawson lies just where it was located when gold was discovered. The houses still stand on the banks of the Klondike and Yukon rivers where the two streams meet. The town is laid out like a checkerboard, with its streets crossing one another at right angles. They climb the sides of the hills and extend far up the Klondike to the beginning of the mountains of gravel built up by the dredgers. The public roads are smooth, and the traffic includes automobiles and heavy draft wagons. There are more than fifty automobiles in use, and two hundred and fifty-

five miles of good country highways have been made by the government in the valleys near by.

Dawson has been burned down several times since the great gold rush, and vacant lots covered with the charred remains of buildings are still to be seen. Most of the stores are of one story, and log cabins of all sizes are interspersed with frame houses as comfortable as those in the larger towns of the States. Scores of the homes have little gardens about them, and not a few have hothouses in which vegetables and flowers are raised under glass. Empty houses and boarded-up stores here and there show the decline in population.

This is the seat of government of Yukon Territory and the district headquarters of the Royal Canadian Mounted Police. Here the judges hold court, and here the commissioner has his residence. The government house is a large yellow frame building with a wide porch. In front of it is a beautiful lawn, and beds of pansies border the walk that leads to the entrance. At the rear are gardens filled in summer with the most delicious vegetables grown in the Yukon, and near by are the hothouses that supply the tomatoes and cucumbers for the commissioner's table.

Yukon Territory is next door to Alaska, and its resources and other characteristics are so similar that it might be called Canadian Alaska. Its southern boundary is within thirty miles of the Pacific Ocean, and the territory extends to the Arctic. It is a thousand miles long and in places three hundred miles wide, and it comprises almost as much land as France. It is one third the size of Alaska from which it is separated by the international boundary, which crosses the Yukon River about one hundred miles from here.

The Dawson of to-day has none of the earmarks of the Dawson of the past. It has now several churches, a city library, radio concerts, women's clubs, sewing societies, and afternoon teas. The palatial bars where beer cost three dollars a bottle and champagne twenty dollars a pint have long since disappeared. The hymns of the Salvation Army have taken the place of the songs of the dance halls, and in the hotel where I am staying is a Christian Science lecturer who is drawing large crowds.

The order on the streets is as good as that of any town in New England, and educationally and socially the place is the equal of any of its size in the States. There is still a large proportion of miners, but most of them are connected with the great dredging and hydraulic operations, and the independent prospectors are few. There are many business men and officials, as well as lawyers and doctors. Now and then Indians come in to sell their furs to the traders. The stores have large stocks of goods and handle most of the trade of the Yukon and some of that of eastern Alaska.

For the first few years after gold was discovered in the Klondike everything was paid for in gold dust or nuggets, and the store-keepers had their gold scales, upon which they weighed out the price of their goods. Every miner then carried a gold poke, and paid for a cigar or a drink with a pinch of dust. To-day the only place where one can use any coin less than a quarter is at the post-office, and there the change is in stamps.

Visiting a grocery store, I saw cantaloupes selling at seventy-five cents apiece, chickens at three dollars, and eggs at a dollar a dozen. These are the summer prices. In the heart of midwinter, when the hens go on a

strike, eggs soar to five dollars a dozen. In early days they sometimes sold for eighteen dollars, and were cheap at one dollar apiece. In a butcher shop hard by I saw salmon that had been brought seventeen hundred miles up the Yukon, and the finest of porterhouse steaks. As I have said, the beef has to be brought in from southern Canada or the States, and the freight rates are so high that the butchers cannot afford to import skinny animals. Indeed, I am told that the transportation charges are quite as much as the first cost of the meat.

"All game here is cheap," said a butcher I talked with. "We sell moose and caribou steaks and roasts at twenty or twenty-five cents a pound. As to bear, the people won't eat it; it is too tough. In the winter we have plenty of caribou. The Indians kill deer in great numbers and bring in the hind quarters, peddling them about from house to house. The fore parts of the animals they feed to their dogs. This country is also full of grouse and ptarmigan, and any one can get game in the winter if he will go out and hunt for it."

The commissioner of the territory tells me that the Yukon is one of the best big game regions of the North American continent. All shooting is restricted and licensed, and, so far, there is no indication of the animals dying out. There is an abundance of moose, mountain sheep, and mountain goats, and ten thousand caribou may sometimes be seen moving together over the country. Such a drove will not turn aside for anything. One can go moose hunting in an automobile within twenty-five miles of Dawson. The moose are among the largest of the world. Their horns have often a spread of five or six feet, and it is not uncommon to kill caribou with antlers having more than thirty points.

At a drug store I paid a quarter for a bottle of pop. The proprietor, a pioneer gold miner, had a store in Pittsburgh before he came to hunt for gold in the Klondike. He did fairly well mining, but decided there was more money in drugs.

"My prices are small, compared with what I got when I first started business," he said. "I used to charge a dollar for a mustard plaster, a dollar for a two-grain quinine pill, and fifty cents an ounce for castor oil. I sold my Seidlitz powders at a dollar apiece, and flaxseed for thirty-two dollars a pound. The latter was used largely to make a tea for coughs and colds. I remember a cheechako, or tenderfoot, who came in during those days. He asked me for ten cents' worth of insect powder. I looked him over and said: 'Ten cents! Why man, I wouldn't wrap the stuff up for ten cents.' The cheechako turned about and replied: 'You needn't wrap it up, stranger; just pour it down the back of my neck.'"

Speaking of the old-time prices, I hear stories everywhere as to the enormous cost of things in the days of the gold rush. All tinned vegetables were sold at five dollars a can, and a can of meats cost a third of an ounce of gold dust or nuggets. At one time, the usual price of all sorts of supplies and provisions was one dollar a pound. One man tells me he bought an eight-hundred-pound outfit in Dawson for eight hundred dollars. It consisted of provisions and supplies of all kinds, shovels and nails costing the same as corn meal and rice. At that time flour sold for fifty dollars a sack, firewood for forty dollars a cord, and hay for from five hundred to eight hundred dollars a ton.

I heard last night of Jack McQuestion, who had a log cabin store at Forty Mile, a camp on the Yukon. One

Many who live in Dawson in winter spend their summers in little cabins in the country or on the islands in the river. Some of them grow flowers and vegetables for the Dawson market in gardens along the river.

Though not many degrees south of the Arctic Circle, the official residence of the Commissioner of Yukon Territory has in summer green lawns, shade trees, and beds of flowers that thrive in the long hours of sunlight.

Dawson is so far north on the globe that some days in midsummer have only one hour of darkness. This photograph of Mr. Carpenter and a miner's pet bear was taken after ten o'clock at night.

day a miner came in and asked for a needle. He was handed one and told that the price was seventy-five cents. The man took the needle between his thumb and finger, looked hard at it, and then said to McQuestion:

"Say, pard, ain't you mistaken? Can't you make it a bit cheaper? That's an awful price for a needle."

"No," said the storekeeper, "I'd like to if I could, but great snakes, man, just think of the freight!"

Another story is told of a miner who wanted to buy some sulphur. The price asked was five dollars a pound.

"Why man," said he, "I only paid five cents a pound for it in Seattle last month."

"Yes, and you can get it for nothing in hell," was the reply.

Here in Dawson the days are now so long that I can read out-of-doors at any time during the twenty-four hours. I can take pictures at midnight by giving a slight time exposure, and in the latter part of June one can make snapshots at one in the morning. It is not difficult to get excellent photographs between nine and eleven P. M. and at any time after two o'clock in the morning. The sun now sets at about eleven P. M. and comes up again about two hours later. The twilight is bright and at midnight the sky is red. Last night I saw a football match that did not end until after ten o'clock, and moving pictures were taken near the close of the game.

I find that the light has a strange effect upon me. The sleepiness that comes about bedtime at home is absent, and I often work or talk until midnight or later without realizing the hour. The air is invigorating, the long hours of light seem life-giving, and I do not seem to need as much sleep as at home.

The weather just now is about as warm as it is in the States. The grass is green, the trees are in full leaf, there are flowers everywhere, and the people are going about in light clothing. The women go out in the evening with bare arms and necks, and the men play football, baseball, and tennis in their shirt sleeves. There are many barefooted children, and all nature is thriving under the hot twenty-two-hour sun of the Arctic.

Many people here declare that they like the winters better than the summers, and that they all—men, women, and children—thrive on the cold. The pilot of the boat on which I came in from White Horse tells me he would rather spend a winter on the Upper Yukon than at his old home in Missouri. He says that one needs heavy woollen clothing and felt shoes or moccasins. When the thermometer falls to fifty or sixty degrees below zero he has to be careful of his face, and especially his nose. If it is not covered it will freeze in a few minutes. At twenty degrees below zero the climate is delightful. The air is still and dry, and the people take short walks without overcoats. At this temperature one needs a fur coat only when riding. Cows and horses are kept in warmed stables and get along very well. Horses are seldom used when the thermometer is fifty degrees below zero. At that temperature the cold seems to burn out their lungs. Still, it is said that there are horses that are wintered in the open near Dawson. They have been turned out in the fall to shift for themselves and have come back in the spring "hog fat."

The old timers here tell me that the dreariness of the long nights of the winter has been greatly exaggerated. During that season most of the earth is snow-clad, and

the light of the sky, the stars, and the moon reflected from the snow makes it so that one can work outside almost all the time. True, it is necessary to have lights in the schools, and in the newspaper offices the electricity is turned off only between 11:15 in the morning and 2:15 in the afternoon. The morning newspaper men who sleep in the day do not see the sun except upon Sunday.

In the coldest part of the winter the snow makes travelling difficult. It is then so dry that the dogs pulling the sleds have to work as hard as though they were going through sand. In March and April the snow is not so powdery and sleighing is easier. The ideal winter weather is when the thermometer registers fifteen or twenty-five degrees below zero, with a few hours of sunlight. The most depressing time is from the middle of December until the end of the first week in January. Then comes the most severe cold, and the sun may not be seen at all.

It is this midwinter period that is described in many of the gruesome poems of the Yukon, especially in Service's "Cremation of Sam McGee." You remember how Sam McGee left his home in sunny Tennessee to roam around the North Pole, where:

He was always cold, but the land of gold seemed to hold him like a spell;
Though he'd often say in his homely way that he'd sooner live in hell.

The poet describes how Sam froze to death on the trail above Dawson and how, before he died, he made his partner promise to "cremate his last remains." This was done, between here and White Horse, on the "marge of Lake Lebarge." There the frozen corpse was stuffed

into the furnace of the derelict steamer *Alice May* and a great fire built. Sam McGee's partner describes "how the heavens scowled and the huskies howled, and the winds began to blow," and how, "though he was sick with dread, he bravely said: 'I'll just take a peep inside.'" He then opens the furnace door:

And there sat Sam, looking cool and calm, in the heart of the furnace roar;
And he wore a smile you could see a mile, and he said: "Please close that door.
It's fine in here, but I greatly fear you'll let in the cold and storm——.
Since I left Plumtree, down in Tennessee, it's the first time I've been warm."

Yukon Territory is said to have thirty-eight million acres of land that can be utilized for crops or grazing. Above the Arctic Circle red-top grass, which is used as hay, grows almost as high as a man.

Land on the upper Yukon will yield six or seven tons of potatoes an acre. Sometimes prices are so high that one crop from this seventeen-acre field has brought in ten thousand dollars.

CHAPTER XXXIV

FARMING ON THE EDGE OF THE ARCTIC

THIS is the story of Chicken Billy and his ten-thousand-dollar potato patch. It is about a young American who became the poultry king of the Klondike, and then turned to farming with such success that he has had a field of potatoes that brought in ten thousand dollars in one year.

Chicken Billy is a representative type of the farmers of the Far North. I first met him yesterday afternoon when he called at my hotel here in Dawson. A rough-looking man of less than medium height, his face is bronzed by the hot summer sun of the Arctic and his hands are horny from handling the plough. He had brought some of his crops of hot-house vegetables into Dawson for sale, and he wore his working clothes—a flannel shirt open at the neck, blue jeans somewhat the worse for wear, and a pair of rough boots that reached to his knees.

Billy was born in Philadelphia and went to school there. He was still under twenty when he passed the examinations for appointment to the navy. He was so excited over his success that when he came into the hands of the surgeons to be tested as to his physical fitness his heart was throbbing at the rate of a hundred-odd beats to the minute, and the result was that the doctors said he had heart disease and pronounced him unfit for service.

Billy then worked at odd jobs, without great success,

until one day he read in a newspaper about the gold strike in the Klondike. The article was headed "Gold at the Grass Roots," and Billy tells me he decided to dig into the grass and take out a fortune. He had only seventeen dollars at the time, but with that he got to St. Paul and thence worked his way up to Skagway. He walked in over the Dyea trail and fought for his own with the miners of Dawson. He got some gold from his various ventures, but made no big strikes, and finally gave up mining to raise chickens. For this purpose he bought an island in the Yukon not far from the mouth of the Klondike, and built a henhouse of logs with glass windows facing the south.

For a while Billy prospered. His eggs sold for fifty cents each, and his fat chickens brought in forty or fifty dollars a dozen. He built up his flock until he had nine hundred chickens, and his fresh-laid eggs became so well known that he acquired the nickname of Chicken Billy. When he thought he was on the sure road to success, competition arose. The other poultry raisers cut prices, and chickens dropped to a dollar apiece. Billy began to lose money and so looked about for other kinds of farming. He is now raising only fancy chickens, and is devoting his energy to hogs and potatoes, with occasional crops of turnips and oats.

My visit to Billy's farm was one of the most interesting trips I have had in the Yukon. We started up the river from Dawson in a gasoline boat about three feet wide and forty feet long. The boat had a big paddle wheel at the end attached to the engine by a long iron shaft. We had gone only two miles when this shaft broke and we had to row ourselves to the nearest island. Leaving the beach,

we made our way through the potato rows from one farm to another. The first farm we visited was owned by a Swede. He had eleven acres under cultivation, half in potatoes, and half in oats. The oats are grown for hay, and some of it stood in shocks as high as my head, while that not yet cut reached halfway to my waist.

The owner told me that this oats hay often sells for sixty dollars a ton. When I asked what he expected to get for his potato crop, he fixed the price at ninety dollars a ton, saying that it might go as high as one hundred dollars. He told me of one crop from three acres that had yielded him thirty-seven hundred dollars. That was when the Guggenheim syndicate began to dredge out the gold of the Klondike. They were employing large numbers of men, and potatoes were scarce. Since then he has raised nothing but potatoes and oats. The next farm we visited produced potatoes and carrots. The woman in charge told me that the carrots paid as well as the potatoes. She said that she and her husband enjoyed their summer home on the Yukon. They live in Dawson in winter.

Leaving this farm, we found ourselves at the end of the island with the next one about a half mile upstream. This was Billy's island, and a loud shout brought his helper after us in a canoe. Upon landing we first took a look at the hot-house, where cucumbers and tomatoes are raised for the markets of Dawson. This is one of the most interesting features of farming in the Far North. There are more than twenty-five big hot-houses in Dawson itself, and they are all doing well, although Billy says his farm makes more profit than any two of the others.

Billy's hot-house is about thirty feet wide and fifty feet

long. It consists of a great pit walled with logs to the surface of the ground and above that a framework entirely covered with glass. The house is kept warm by wood fires, the ever-present gasoline tank having been made into a stove for the purpose. The plants are set out in beds upon low tables, which are connected with a network of wires. The vines of the cucumbers and tomatoes are trained on the wires. They climb up the walls and hang down from the roof. Many of the cucumbers are over ten inches in length and the largest tomatoes are bigger than the head of a baby.

Leaving the hot-house we took a look at the hogs. During the summer they are kept in enclosures out in the open and in the winter they live in the log henneries, which have been turned into pig pens. The buildings are warmed with good stoves, and the fires are kept up day and night. In the winter the pigs are fed upon potatoes and grain. Their food is cooked and served hot morning and evening. Every bit of manure is saved, Billy says, for the soil of the Yukon needs fertilizing, and this by-product is worth almost four times as much as in the United States.

I went with Billy from pen to pen to examine the stock. It is said that a man may be known by the way animals act in his presence; that if they like him he is to be trusted, if not, he is a man to be watched. If this is true, Chicken Billy should sprout angel's wings. His hogs seemed to love him. He talked to them as though they were human, and they lay down and rolled over like pet dogs. One of his biggest boars did tricks. The babies of the hog pens were of all ages, from little red piggies as big as a kitten to lusty black Berkshires the size of a fox terrier.

Chicken Billy started in the hog business with fourteen

pigs—Duroc-Jerseys, Berkshires, and Yorkshires—most of which had taken prizes at the agricultural fair at Vancouver. He bought them for sixty dollars apiece, and shipped them into the Klondike for breeding purposes.

Leaving the pigs, we went to the farmhouse, a log cabin of two rooms besides a kitchen. The earth was banked up around the outside to keep out the winter cold, and inside were great stoves. For dinner we had eggs fresh from the hens, fried with ham that fairly melted in our mouths. There were mealy potatoes as good as any that ever came out of Ireland, although they had been harvested more than a year before. The bread was made by Billy's hired man, and there were more cucumbers than we could possibly eat.

After dinner we took a skiff and rowed from the island over to Billy's potato farm on the mainland. This farm was on the banks of the Yukon, and the crop was raised within a stone's throw of the river in a seventeen-acre field a half mile long. I have seen many farms, but none better cultivated and more free from weeds than this potato patch. The rows were perfectly straight and the vines reached to my knees. Billy told me he hoped to get six or seven tons to the acre, or more than three thousand bushels in all. At one hundred dollars a ton the gross receipts would be something like ten thousand dollars.

In the centre of the patch is a log cabin with a great cellar where the potatoes are stored until shipped to market. This is so well built and so insulated with air spaces that the potatoes do not freeze, even in the severest weather.

There is no doubt that potatoes can be raised in most parts of Alaska and the Yukon. When Luther Burbank

was in Dawson he said that these regions may some day be among the chief potato lands of the world and that by selective breeding a potato can be developed that will mature here to perfection. Even now the country is raising nearly all that it needs, and the potato imports are decreasing. This year the crop is especially good, and the potatoes are equal in quality to any brought in from outside.

Plants live upon sunshine, and as the Yukon Territory has about one third more sunlight than the United States in the same period of summer, Nature puts on its seven-league boots and makes things grow during our nights. Growth begins in April, when the crocuses come up through the snow. Gardens are planted by the middle of May, and by the latter part of June there are vegetables to eat. The chief summer month is July, although the frosts do not come until the middle of September. After that follows Indian summer, when the hills are ablaze with gold.

The country about Dawson is virgin land covered with trees, which are usually stunted except in the river bottoms. There are meadows in the south and the southwest, and also great areas that can be used for grazing. Doctor Dawson, the man who first surveyed the territory, says that there are thirty-eight million acres that can be utilized either for crops or for grazing. He compares the Yukon with some of the inland provinces of Russia where oats, rye, barley, flax, and hemp are raised successfully.

Most of the farming is in small patches. There are gardens about the miners' cabins where potatoes and turnips, green peas and beets, and carrots and celery are raised. Last year one man grew forty tons of turnips

upon a single acre, and from another acre the same man raised five hundred and sixty-one bushels of potatoes. Another farmer brought in to Dawson a cauliflower measuring ten inches in diameter, a turnip weighing fourteen pounds, and six heads of cabbage that tipped the scales at one hundred and thirty pounds.

Already a number of homesteads have been taken up in the territory, and there are little farms here and there on the banks of the Yukon and on the islands with which it is dotted. The soil is a sandy loam made up of silt brought down by the river. The land is so thickly covered with bushes and trees that it costs one hundred dollars and upward an acre to clear it. Farm wages are high, although the demand for labour is limited, and the market for potatoes and other vegetables is confined to the small population in the mines and in Dawson. If the farms are increased by many new homesteaders there may be a glut in the market and the prices will fall.

CHAPTER XXXV

MINING WONDERS OF THE FAR NORTH

THIS faraway land of the North is the treasure cave of Jack Frost, where gold and gravel are cemented together by perpetual ice. You know of the thousands who rushed here years ago, and of the hundreds who went back loaded with riches. You may have heard how the district about Dawson, where I am writing, produced gold by the ton, the output for ten years being worth more than one hundred million dollars.

In those days pockets worth hundreds of dollars were not uncommon. In August, 1899, George T. Coffey took up two shovelfuls of earth from Bonanza Creek, from which he washed sixty-three ounces of gold, worth nearly a thousand dollars. A miner by the name of MacDonald got ninety-four thousand dollars for the gold from a forty-foot patch of ground. Some of the miners on Bonanza Creek were dissatisfied if the gravel ran less than a dollar a pan. They worked the rich spots only, and when the cream had been skimmed off the surface, gave up their claims.

The gold diggers were followed by corporations. They brought to the abandoned fields millions in capital and the best mining machinery. They thawed the frozen gravel with steam and scooped up the gold-bearing earth with dredges run by electricity. They carried rivers in pipes over the mountains to wash down the gold-sprinkled hills.

They handled millions of tons of material, each of which yielded only a few grains of pure gold, but altogether they produced as much wealth as was taken out in those first prosperous years by the individual miners.

There are two methods by which the treasure that has been left is being recovered. One is hydraulic mining and the other is dredging. Let me give you some of the pictures of the first method, as I saw it on a ride up the Klondike Valley this afternoon. I went with the resident manager of the Yukon Gold Company, the Guggenheim corporation doing most of the gold mining in the Dawson district. We flew along in a high-powered automobile, winding in and out through great piles of débris. We rode up Bonanza and Eldorado creeks, which have been dredged from one end to the other. The whole way was through a mass of gravel, rock, and earth washings. The beds of the rivers and creeks had been ploughed in great furrows many feet deep. There were places where miles of boulders, pebbles, and broken rock seemed to flow down the mountain sides into the valley. Streams of water as big around as the thigh of a man were shooting from pipes with such force that they gouged out great chunks of icy gravel. In some places the water dropped from the top of the mountain, washing down the earth in its fall. The whole gave me the impression of a mighty cloudburst that had torn down the hills and let loose avalanches of earth.

The story behind those streams of water will give you some idea of the marvels of mining in the Far North. When the company bought what were supposed to be the exhausted creeks of the Klondike, it found that in order to work its concessions it must have water with sufficient force to wash out the hills. There was no adequate supply

nearer than the Tombstone Mountains, seventy-odd miles away. The Guggenheims spent four years and millions of dollars in bringing this river to their gold fields. They carried it across frozen morasses, through vast ravines, down stupendous valleys, and then lifted it over mountains and delivered it by a great inverted siphon across the Klondike River to the once famous diggings.

Much of the ditch had to be thawed out and cut from the perpetual ice. In crossing the swamps new methods of road building had to be devised, and men and machinery were assembled far in the interior of a region once thought inaccessible to all but the most daring arctic explorers. The supplies, mostly from the United States, had to come a thousand miles over the ocean and then be carried five hundred miles more across the mountains and down the Yukon to Dawson. Machinery was taken to pieces and dragged by horses and dogs through almost impassable wilds.

The water flows through about twenty miles of flume, twelve and a half miles of steel and stave pipes, and thirty-eight miles of ditch. It comes out at the rate of one hundred and twenty-five cubic feet a second, and with a pressure of four hundred pounds to the square inch.

As the stream is applied, the gold-bearing sand, gravel, and water go tumbling down into sluice boxes filled with steel riffles bedded in mercury. The quicksilver catches the gold, while the rock and sand go on to the tailings below. Some of the gold sinks into the pile at the foot of the sluicing, but this is reclaimed at the clean-up in the fall. Something like three million cubic yards of earth are treated in this way by the hydraulic giants each season. The average amount of gold in the gravel is about twenty

cents' worth per yard, and of this amount one half is said to be profit. The dividends paid by the Yukon Gold Company have amounted to more than ten million dollars, and the profits of a single year have been as much as one million.

As we rode up the valleys I asked the manager whether this process took out all of the gold. He replied:

"We may lose a cent or two to the ton, but the amount is so small that we are unable to tell just what it is. The gold content varies a good deal. The stuff that goes through the dredges may at times yield sixty cents a yard, and we have struck patches that ran five dollars per yard or more.

"The old miners threw away the values that are now being saved," he went on. "One day I showed an old-timer a pan I had just finished washing, and asked him how much he thought it would run. The pan contained a few flakes of gold and quite a little fine flour gold. The miner tilted it so that the grains ran to one side, and then took his thumb and scraped out the flour and threw it away. He threw out just the sort of stuff which we are trying to save, and upon which all our calculations are based."

The dredges, by which much of the gold is now being taken out, operate in ground that has to be thawed before it can be worked. With the exception of a foot or so at the surface, this whole Klondike region is one mass of ice, mixed with boulders, pebbles, and sand that has been frozen for thousands of years. The ice goes down no one knows how deep. Diamond drills sunk to a depth of three hundred feet have gone all the way through frozen earth. The mixture is covered by a thin bed of muck, on

top of which grows a layer of arctic moss. It is only when the moss and the muck are stripped off that the hot summer sun makes any impression on the ice below. Sprinkled through this ice, earth, and rock lies the gold in the proportion of from thirty to sixty cents' worth to the ton. In a wagon load of this mass there is not more pure gold than you can pinch up between your forefinger and thumb. Yet methods for mining it have been devised that make it worth going after. There is a little gold not far from the surface, but most of it is at bed-rock, which may be thirty, forty, or fifty feet down.

The earth has to be thawed out, inch by inch, and foot by foot, in such a way that the dredges can bite into it and gulp it down at the rate of twenty-six bites to the minute and about one third of a ton to the bite.

The dredges do their work so thoroughly that no bit of earth ever escapes them. You can throw a red cent into the heart of a ten-acre field that is to be upturned by these machines and be sure that the coin will come out with the gold. A common amusement is to saw a dime in two and then bet whether the dredges will bring up one of the pieces. The man who bets in the negative holds one of the halves, and the other is buried in the earth. As soon as that spot is dredged, the missing half is almost certain to turn up.

The first miners kept wood fires burning until they had thawed their shafts down to the gold. Other fires were then built along the bed-rock and the earth was dug out until they had made great caverns and tunnels thirty or forty feet under the frozen earth overhead. They used hot stones to aid in the thawing and took out the loosened material in wheel-barrows and raised it to the surface with

buckets and a windlass like an old-fashioned well-sweep. The earth being frozen, the miners did not have to bother to use any timbers to support the roofs of their tunnels.

Much of the thawing of to-day is done by steam forced into the earth through steel tubes three fourths of an inch in diameter, and from ten to thirty feet long. These are called "points." Each tube has a hard metal cap or steel head on the top, and below this an opening where the connection with the main steam pipe is made. The bottom of the tube is pointed so that it can be forced down into the ground. A man stands on a tall derrick and with a twelve-pound sledge hammer drives the pipe, inch by inch, through the earth. The steam-heated steel melts the ice as it goes down. When the point reaches bed-rock, it is left there for two or three days, oozing forth steam. To thaw out enough ground for the dredges to work on, hundreds of these steam points have to be sunk. In places the pipes are so close together that they stand out on the back of old Mother Earth like the quills on a porcupine. They soften the ground so that it is dangerous to walk over it until it has cooled. A man may think it is solid under foot, when all at once he may sink to his knees or waist in scalding hot mud.

In the creeks where the Yukon Gold Company has been operating with steam points and dredges, the values amount to sixty or seventy cents' worth of gold to the ton. The thawing costs about thirty cents for each ton. When the famous Joe Boyle, organizer of the Canadian Klondike Company, came to figure on his problem he found that the steam-point method would cost him four cents more a ton than the value of the gold he could recover. He concluded that if he could get rid of the great non-conductor of muck

and moss that covered the frozen earth, the sun of a few summers would eventually thaw its way down to bedrock.

Then came the question of how to strip off the muck at a cost that would not eat up the profits. Boyle decided that the Klondike River itself could be made to do the job. He dammed it in places and turned its course this way and that. The current soon cleaned off the top layer, and when the water was drawn off it left the gravel exposed to the rays of the sun.

Boyle spent in the neighbourhood of a half million dollars apiece for some of the dredges with which he scooped up the earth thawed out by the sun. They were the largest ever built up to that time, and were manufactured especially for his purposes. They were brought in pieces by sea to Skagway, Alaska, carried over the coast mountains by train, and transported down the Yukon by steamer to Dawson, where they were put to work. They are now lifting the bed of the Klondike Valley and turning it upside down at the rate of five hundred tons in an hour. Buckets that hold a ton apiece pick up boulders as big as a half-bushel basket and earth as fine as flour. They raise this stuff to the height of a six-story house and pour it through revolving screens. The rock, gravel, and sand are carried away, and the gold is caught in layers of cocoanut matting. Every twenty-four hours the mats containing the gold are lifted and washed. The gold and the black sand fall to the bottom and the mats are put back again.

While I was cashing a draft at the Bank of British North America the other day, I had concrete evidence of the wealth being won, grain by grain, from the Klondike. I

saw a shipment of gold ready to be sent out. It had come to the bank in the form of dust and nuggets and had been melted down into bricks. There were fifty thousand dollars' worth of these bricks lying on the counter, covering a space about three feet square. They were of a light yellow colour, and some were almost white on account of their high percentage of silver. Some were the size of a cake of laundry soap while others were only as big as a cake of milk chocolate. I lifted one of the larger ones. It weighed a little more than twelve pounds and its value was two thousand dollars. Later I saw the bank clerk put the bricks into canvas bags and label them for export by registered mail.

Leaving the bank, I dropped in at the offices of the Northern Commercial Company, where I watched gold dust and nuggets being made ready for shipment to the States. The gold filled two satchels and was worth in the neighbourhood of one hundred thousand dollars. It was put up in little sacks the size of a five-pound salt bag. Each sack was worth from five to ten thousand dollars.

All gold that is shipped out of Canada pays a royalty or tax to the government, and everyone who leaves the Klondike is examined to see that he has no gold upon him. Once a woman succeeded in smuggling out a large quantity of nuggets and dust. She was examined by the inspectors, but they took no account of a big flower pot containing a rose bush that she was carrying with her. Not until she got safely away was it learned that the soil with which the pot seemed to be filled was only half an inch deep and that underneath were hundreds of dollars' worth of almost pure gold.

CHAPTER XXXVI

ROMANCES OF THE KLONDIKE

SIT beside me on the top of King Solomon's Dome and listen to some of the romances of the Klondike, true stories surpassing the fiction of the "Arabian Nights." King Solomon's Dome is the very centre of the Klondike gold region. It is a mountain higher than the average peaks of the Alleghanies, rising three thousand feet above Dawson, and I have climbed to its top in an automobile. There at the west is Bonanza Creek, where, twenty-five years ago, gold was first found, and running into it is Eldorado Creek, where Swift-Water Bill Gates and Charlie Anderson, the Lucky Swede, as well as scores of others, made their fortunes.

The man who first discovered gold in the Klondike was George Carmack, a New Englander who had come to Alaska from North Adams, Massachusetts. He married an Indian and he had three Indians with him when he was prospecting on the ground just below us. As the story goes, one of the Indians who had gone to the creek for some water saw the gold shining there in the sand. Taking up some dirt on the edge of the creek, the men washed it, and within a half hour had recovered twenty dollars' worth of gold. Carmack then laid out claims for himself and his three companions, each of which brought a fortune that all too soon slipped through its owner's fingers.

The news of the discovery spread like wildfire over the

Although the earth contains only a few cents' worth of gold to the ton, the use of giant dredges to scoop up the gravel from the beds of the Klondike and Yukon rivers enables the mining companies to operate at a profit.

With all the force of a shell from a big gun, a giant stream of water is played against the hillside, washing the earth into sluice boxes, where a layer of mercury catches even the most infinitesimal particles of gold.

North. It was telegraphed to all parts of the world and by the next year men were rushing to the Klondike from every direction. They staked both sides of the Bonanza. They set up claims along Eldorado, Dominion, and Hunker creeks, and dug out gold all along the valley of the Klondike River.

Charlie Anderson's claim was No. 29 Eldorado and it cost him six hundred dollars. He had saved this money from his wages as a pick-and-shovel miner at Forty Mile, and bought the mine one night when he was too drunk to know what he was doing. When he awoke the next day he wept bitter tears and asked the men who thought they had swindled him to take back the claim and give him his money. They refused, and so Anderson walked eighty miles to the Klondike and started work. He found only a hole in the ground, but he thawed and dug eighteen feet deeper and came upon a fortune. When he made the first strike the men who had sold him the claim were near by and asked with a sneer what he had found. He replied: "Ay tank Ay got some gold here," and showed them his pan. There were fourteen hundred dollars' worth of gold nuggets in it, and the claim eventually yielded between one and two million dollars. But, like other Klondikers, Anderson ran through his money as fast as it came. He was cheated by every one, and ended as a day labourer somewhere in the States.

In coming down the Yukon to Dawson the captain of the steamer told me many stories about Charlie Anderson, whom he had known well. Said he:

"Anderson had been doing railroad work in the States, but was discharged, and that drove him to Alaska. When he struck it rich he took out more than two hundred thou-

sand dollars the first year, and during the next four years his claim yielded him almost two million dollars."

"What did he do with the money?" I asked.

"He spent it as fast as he got it. He kept a gang of gamblers and dance hall girls about him and gave away thousands. When he was at the height of his fortune and had an income of a half million a year, he fell in love and was married. He took his wife to San Francisco, where he bought her a house and gave her all the money she could spend besides. When he was about at the end of his fortune he told me she had cost him a quarter of a million. He then pulled out of his pocket a garter with a clasp set with a diamond as big as the end of your thumb, and said:

"'And this is all I have to show for it. I am almost broke now, but I will go back and find some more.'

"Anderson's claim was then played out," the captain continued. "He tried to find others, but failed. In his first trips with me he travelled in state, buying all the liquor and cigars that the ship had and standing treat to the passengers. On his last trip he booked in the steerage. He was dead broke. Shortly after we started I saw him, dressed in rough clothes, sitting at the prow of the boat. I went up to him and said:

"'Well, Charlie, it is different with you from what it used to be.'

"He looked up and his eyes filled with tears.

"'Yes,' said he, 'I am travelling steerage, for I have not enough money to pay first class.'

"I was so sorry for him that I put him in one of the first cabins and took him home without charge."

Swift-Water Bill Gates' story was a good deal like Anderson's. He was a Portuguese, who got his nickname

from his claim that he swam down the rapids of the Yukon on his way to the gold fields. He began as a waiter in an eating house. One day while serving two miners he heard one tell the other of the gold discovery in the Klondike. He left their order unfilled, got a dog team, and rushed to Dawson. He was in at the first and picked out a number of claims, including that on Eldorado, which made him a fortune. He was successful for years, but was so dissipated that he ran through his millions, and when he left with the stampede to Fairbanks, he had only fifty cents in his pockets. There he made a second great strike, but he lost that fortune as well.

Swift-Water once cornered the egg market in Dawson, and all for the love of a lady. He was a gallant suitor, and at this time he was courting Miss Gussie Lamore, a popular and beautiful young woman who had been nicknamed "The Little Klondike Nugget." But the course of true love did not run smooth, and for a time it seemed as though Bill's cake were all dough. Then he remembered that Gussie doted on eggs, and he prepared to corner the supply. There were just eight thousand eggs in the town, and they were selling at a dollar apiece. Bill slipped about from store to store and bought every one of them. He then remarked that if Gussie wanted more eggs she would have to eat out of his hand, or if she stuck to his rival "she wouldn't eat no eggs." Gussie succumbed, and so Cupid won by an egg.

In another claim on Eldorado a young Y. M. C. A. secretary struck it rich. This man had started mining on Forty Mile Creek, but when gold was discovered near Dawson he left his young wife there and came on with the crowd. The first claim he selected was comparatively small and

had no timber upon it. As he needed logs to build a cabin, he traded his claim for another farther down the creek where the valley was wider and timber was plentiful. He built a cabin, sent for his wife, and they started to work. When he had thawed the earth to some distance below the surface he laboured down in the pit and his wife wound the windlass that drew up the buckets of rocks. Time and again, in despair, they talked of selling out and going back home. But they held on until they came to bed-rock, where the gold was so rich that their claim paid them about two million dollars. Unlike Anderson and Gates, this man invested his money in real estate in Seattle.

All sorts of characters came to the Klondike in the early days. With such types as the Lucky Swede, Swift-Water Bill, and Frank Slavin, the prize fighter, came business and professional men from all parts of the United States. Joaquin Miller came to mine gold and write poetry and newspaper articles. Rex Beach was here, and so was Jack London. Jack London was at one time a partner of Swift-Water Bill, and it is said that the two owned a claim that eventually produced more than one million dollars in gold. Jack London began the work on the property. He made a fire and thawed the muck on the top of the gravel. He left his tools in the soft mud over night. Before morning the thermometer dropped to sixty degrees below zero, and when he again started to work he found he would have to thaw out his tools, but that if he did so their handles would be burned. He left in disgust, and Swift-Water Bill got all the gold. Jack London's wealth came from the literary material he carried away as the result of his experiences. The same may be said of Rex Beach, who has written so many good stories of Alaskan life, and of

To-day most of the Klondike gold is recovered by machinery in large-scale workings, but now and then one sees a miner washing the gravel by hand in a contrivance like this.

Some of the miners, instead of moving on to new scenes of action when the gold began to give out, have stayed on with their families, working a few acres of land and occasionally panning out a little gold.

Much of the Yukon is unexplored, and bridges and ferries are few, so the hunter and the prospector must ford the rushing streams and make their own trails through the country.

Robert Service, whose shabby cabin still stands near the Dome.

Indeed, many books might be made about the ups and downs of the Klondike in the height of the gold fever. Men came here beggars and went away millionaires, and millionaires lost fortunes and became tramps. Gold was shipped out by the ton, and in the city of Dawson it was spent by the pound. At the start, the town was what in slang phrase is known as "wide open." The scores of gambling houses, saloons, and dance halls all made money. In one dance hall twelve women were employed at $50 a week, besides the twenty-five per cent. commission they received on the drinks and cigars sold through their blandishments. One girl stated that her bar commission for the first week amounted to $750. Another saloon had six beauties to dance at $150 a week, and in many of the halls the women were paid a dollar for a dance of five minutes.

I have before me a copy of a bill of fare of one of the old restaurants. A bowl of soup cost $1 and a bowl of mush and milk $1.25. A dish of canned tomatoes cost $2, a slice of pie 75 cents, and a sandwich with coffee, $1.25. Beans, coffee, and bread were $2, a plain steak was $3.50, and a porterhouse was $5.

A leading restaurant, which had a seating capacity of thirty-two, employed three cooks, one of whom received $100 a week, and the others $1 an hour. The waitresses got $100 a month. The restaurant occupied a tent twenty by forty feet, which rented for $900 a month. Carpenters were drawing $15 a day, and common labourers $10. Skilled woodworkers got $17 a day, and journeymen tailors $1.50 an hour. The ordinary charge for a sack suit was $125. Barbers made from $15 to $40 a day, each re-

ceiving sixty-five per cent. of the receipts of his chair. Four barber shops were in operation, and their prices were $1 a shave, $1.50 for a hair cut, and $2.50 for a bath.

During that winter newspapers brought in over the trail sold for $2 apiece. A weekly newspaper was started, known as the Yukon *Midnight Sun*, which cost $15 a year, and a little later the Klondike *Nugget* was issued weekly at 50 cents a copy.

Banks were soon established and did a big business in buying gold dust and putting their notes into circulation. The first eight days after it opened its doors, the Canadian Bank of Commerce bought one and one half million dollars' worth of gold dust. Some years ago the old building in which that bank had its offices was burned, and one of the clerks asked permission to work over the ground as a gold claim. He wanted to recover the waste from the assay offices and also the dust that had fallen on the floor from time to time in the purchase of gold. His request was granted and his idea proved worth thousands of dollars.

CHAPTER XXXVII

A DREDGE KING OF THE KLONDIKE

SINCE I have come to western Canada I have acquired a contempt for Aladdin. At every step here I am meeting common, everyday men who are enslaving genii a million times mightier than those of the Arabian Nights. They rub their magic lamps and mechanical wonders spring up almost in a night. They give an order and change the course of a river. They lift a hand and valleys are turned upside down. Of all these conquerors of Nature in the Klondike none has come up to Joseph W. Boyle, the famous dredge king, who was once the most striking figure in this land of gold.

Joe Boyle started at the bottom and won great wealth and a dominant position. In manner and thought he was as plain as a pipe stem. A giant of a man, over six feet in his stockings, he was straight and well formed. He had a big head, a broad, high forehead, and eyes like blue steel. Yet he was a good companion and hail-fellow-well-met with those he liked. He was a friend to his employees and addressed them by their first names. They referred to him always as "Joe Boyle" or "J. W. B.," but they understood that he was the boss and that everything must be done just as he said.

Boyle began his fight with life as a boy and kept it up until he died after the World War. His father, who was a farmer living at Woodstock, in eastern Canada, had

planned that Joe should become a lawyer or a preacher and with that end in mind had sent him to college. This was too tame for "J. W. B." He left school and shipped before the mast as a sailor. Once, in going from the Island of St. Helena around the Cape of Good Hope, his ship sprang a leak. Boyle took charge of the crew at the pumps and kept them at work for four thousand miles until they sailed into Bombay. When he had risen to the position of quartermaster of a British vessel he gave up the sea and came home.

A little later he struck out for the West, where he became trainer and manager for Frank Slavin, the bare-knuckle champion prize fighter. The two staked their all on Slavin's success in a big fight, which was lost. They had exactly fifty cents between them when they decided to go up to the new gold mines of the Yukon. They "mushed" it from Dyea over the mountains, and got to the Klondike shortly after gold was discovered. For a time they worked together, and then Boyle engaged in placer mining with Swift-Water Bill Gates.

At one time he and five or six companions ran out of supplies. They had started for the "outside" through Chilkoot Pass, where a blizzard caught them. Swift-Water was overcome, and Boyle carried him back into camp on his shoulders. After that the party came to a stream that only Boyle had the strength to cross. He took over the others one at a time and they went on their way. When at last they reached San Francisco they were given a big banquet and on the menu cards was printed the story of what Boyle had done.

At this time Boyle was not doing as well as he had hoped at his mining. He looked over the ground of the

Klondike Valley and conceived the idea that there was a fortune to be made in the earth the miners had left. Boyle stood on a little hill above the Klondike River, and determined to lease all the land within sight. This was when the mining in the creeks was at its height and the valley was so lean it was thought worthless.

Joe Boyle also staked a timber claim ten miles in length and extending through and beyond the area of his mining claim. Everyone laughed at his mining proposition, but he had to fight for his timber. As soon as news of his application got out his competitors at Dawson saw the authorities and had them require him to stake out the whole ten miles of his claim. This stipulation was made at three o'clock on the afternoon before the last day in which the title could be perfected. Boyle started on foot that afternoon and tramped all night, wading through swamps, blazing trees, and driving stakes to define limits. The work was exhausting, but he kept on until he thought he had marked out not less than fifteen miles. He got back to Dawson at nine o'clock the next morning, only to find a number of men ready to jump his claim if it had not been staked. When the area was measured according to law, it was found that his stakes fell short only twenty feet of the ten miles allotted. Boyle put in saw-mills and made money out of his lumber and wood. He got from this same claim the timbers needed in his gold dredging.

His lumber profits gave Boyle the money he needed to approach capitalists about financing his mining concessions. He first formed an alliance with the Rothschilds, by which he was to have one third and they two thirds of the stock. The understanding was that they were to furnish the money, amounting to some millions, and that

Boyle was to manage the property and superintend its development.

Then the Rothschilds tried to squeeze out "J. W. B." They questioned his title and planned a reorganization. Boyle carried the matter to Ottawa; he fought them in the courts, where he got a judgment in his favour for more than six hundred thousand dollars. The Rothschilds then offered him a million dollars for his share of the stock. He refused and in return made them an offer of four hundred thousand dollars for the two thirds they held. At first they laughed, but they finally reconsidered and accepted his proposition. Boyle then formed another corporation, the Canadian Klondike Mining Company, by which name the property is known to this day.

This company owns leases from the government of Canada that give it the right to work the lower valley of the Klondike up to the crest of the mountains on both sides of the river. The greater part of its holdings lie in the wide bed between the hills through which runs the swift-flowing river. At a distance it looks like farm land and when the concessions were granted much of it was covered with gardens. It had been cleared of woods by the first miners, who, it was generally believed, had stripped the soil of its gold.

Joe Boyle thought otherwise. He reasoned, "If so much gold has come from the valley there must be quantities of gold dust and grains in the bed-rock underneath." Working upon that supposition, he became a rich man by handling gold-bearing earth carrying values of only about twenty-six cents to the ton.

And this brings me to another of the wonders of engineering in the Far North. It is a device invented by

Boyle for keeping the hydro-electric plant running throughout the winter, notwithstanding the fact that the temperature at times falls to seventy degrees below zero. That is so cold that if you should attempt to run a sprayer such as is used in an orchard the water would turn to ice before it fell to the ground. At such times some of the streams have seven feet of ice over them and many are solid. Nevertheless, Boyle turned a branch of the Klondike River into a ditch six miles long and dropped it down upon turbines with a fall which he said would generate electricity to the amount of ten thousand horse-power a day all the year through.

Joe Boyle knew that the waters of the Yukon and the Klondike flow under the ice all winter long and that there is an air space between the water and the ice overhead. He concluded that, on the principle of the double walls of an ice house or a thermos bottle, it was this dead air space that kept the running water from freezing. The only thing necessary was to make Nature furnish the thermos bottle. This Boyle did. He filled his ditch to the top and allowed a sheet of ice to freeze a foot or so thick upon it. He then lowered the level of the water two feet, leaving a running stream four feet deep, with an air space above. He next installed electric heaters underneath to help keep the water from freezing. In this way he made the water warm itself, for the stream thus kept moving generated the electricity for the heaters, each of which required current equal to one hundred horse-power.

I went out yesterday in an automobile to North Fork, thirty miles up the Klondike Valley, to see this electric plant. The ditch is thirty feet wide, about six feet in depth, and six miles long. The water drops down through

great pipes, with a fall of two hundred and twenty feet on the turbines. I asked one of the men how Mr. Boyle got the idea of electrically heating the water and was told it came to him one morning at breakfast. The family had toast and eggs, and were browning the bread on the electric toaster. As he looked at it, Boyle thought that he might employ the same principle in keeping the water from freezing. His men made out of telephone wire a gigantic toaster somewhat like a woven-wire bed spring. This was properly insulated, dropped into the ditch, and connected with the electric plant.

In 1914 Boyle was forty-seven years old and in the prime of his vigour. Moreover, he had just won a million dollars in a suit against the Guggenheims and so had plenty of cash for any adventure. He organized a machine gun battery of fifty gunners, picked men of the Yukon, and offered them to the Allied armies. To his great distress, his battery was broken up and scattered through the forces. He went to London and from there was sent into Russia to help in keeping transportation open. On one occasion he reported to the chairman of the Soldiers' Committee, who was inclined to be nasty.

"Were you sent here because you were the best man they could find on the Western Front?" he demanded of Boyle.

"Possibly so," was the reply. "And now, you answer me this. Are you the best man on your committee?"

"I am," answered the chairman, expanding his chest.

"Very well, I will meet you man to man," said Boyle, as he unbuttoned his coat and doubled his fists. He had no more trouble with that chairman.

When Russia gave up, Colonel Boyle went over into Rumania, where he became a national hero. He under-

Starting with a capital of fifty cents, Joe Boyle made a fortune by gleaning gold from abandoned workings. Then he gave up mining to go to war and became almost as famous in Eastern Europe as in the Klondike.

To get the water for washing down the gold-bearing gravel of the Klondike hills, millions of dollars were spent in building ditches, flumes, and pipes from the Tombstone Mountains, seventy miles away.

took all sorts of dangerous and important missions. For instance, when the Bolsheviki were beginning to get the upper hand, he offered to go to Moscow to bring back the national treasure of Rumania, which had been sent there for safe keeping. He got into Moscow, loaded millions of dollars' worth of bank notes and securities on a special train, and started back. On the way the engineer of the train deserted, leaving his boilers without water or fuel. Boyle and his helpers carried water in buckets from the nearest station and cut wood for the fire. Though he had never driven a locomotive before, Boyle climbed into the cab and got the train and its treasure across the border. Later he turned the Russian Black Sea fleet pro-Ally, arranged peace terms between Rumania and the Bolsheviki, and saved sixty Rumanian deputies from banishment to Sebastopol.

After the Armistice he was commissioned to superintend the distribution of the food and supplies bought for the country with the Canadian credit of twenty-five million dollars. Then he became interested, with the Royal Dutch Shell Transport Company, in oil concessions in Caucasia.

In the course of his many adventures in Rumania, Colonel Boyle flew so high and so fast in airplanes that he suffered a sort of paralytic stroke. During his illness he was attended for two months by Queen Marie and her daughter, who did everything they could to show their appreciation of his service to their country. He finally recovered, but when in England on his way back to Canada, he died of heart failure.

CHAPTER XXXVIII

THE ROYAL CANADIAN MOUNTED POLICE

EVERYONE has heard of the Royal Canadian Mounted Police. They constitute one of the most remarkable military forces in existence, with an amazing record for the capture and punishment of criminals in the frontier lands of the Dominion. I have met with the Mounted Police in all parts of Canada, have visited the headquarters in Ottawa and the training station at Regina, and have talked here at Dawson with the inspector in charge of the Yukon division. I find the service a gold mine of stories, and fully deserving its reputation for maintaining law and order on the fringes of civilization.

Our own "wild and woolly West" has disappeared, but Canada still has vast areas of undeveloped country into which white men are pushing their way under conditions similar to those in the United States a generation or two ago. But where our frontier was notorious for its lawlessness, that of the Dominion is equally noted for its few crimes. In the Canadian Northwest a "bad man" cannot long escape the strong arm of the law, and in nine cases out of ten he meets with punishment both swift and sure.

From the wheat lands adjoining our border to the gold rivers of the Yukon, from the Great Lakes to the Arctic Ocean, the settler, the prospector, or the trader can lie

down to sleep at night with little fear for his safety. That this is so is chiefly due to this police force.

Detachments of the Royal Canadian Mounted Police are now located all over Canada. They are to be found in the thickly populated centres as well as in the Far North. But it was as a frontier police that the organization was first created, and it was in the Northwest Territories that its reputation was made. It has its stations about Hudson Bay, along the Peace River, on the banks of the Mackenzie, and on the shores of the Arctic Ocean. The latest posts established are those on the north coast of Baffin Island, opposite Greenland, and on Ellesmere Island, less than one thousand miles from the North Pole.

The duties of the Mounted Police are widely varied. They are especially charged with the enforcement of federal statutes, and are wholly responsible for law and order in the Northwest Territory, the Yukon, the national parks, and the Indian reservations. Elsewhere the organization coöperates with provincial authorities and the federal departments. It looks after such matters as violations of the customs, of excise regulations, the circulation of radical or revolutionary propaganda, the improper storing of explosives, and the debauching of the Indians. Special patrols are sometimes sent out to strengthen the hands of the Indian Department when unrest is reported among their charges. Some are detailed to see that the betting at the race tracks in the various provinces does not infringe upon the laws, and others to escort trainloads of harvest workers to their destinations and prevent disorders on the way. Patrols go for hundreds of miles by dog sled into the Far North to keep order and investigate crimes among the Eskimos.

The actual discharge of these duties leads to a variety of activities. The Mounted Police patrol the United States border to guard against smuggling of liquor, Chinese, and narcotics. They ride about the newly colonized districts, visiting the homes of the settlers and watching for cattle thieves. Any complaint of disorder or law breaking is promptly investigated, and a member of the force may spend months in the rôle of detective, seeking evidence or making a search for a suspected man.

The Mounted Police have cut many of the trails of the Far North. When the big gold strikes were made in the Klondike, they built the first road through the wilds of the Yukon, and they have opened up parts of the Canadian Rockies to prospectors. Whenever a new gold district is discovered, or an oil find is reported, the Mounted Police are among the first on the scene, and every one knows that the law is at hand. That is why the Klondike was peaceable during gold rush days, while in Alaska, across the international boundary, notorious "bad men," such as "Soapy Smith" and his gang, held almost undisputed sway for a time.

The Mounted Police sometimes erect shelters along the new trails, in which they place stores of food for use of prospectors in an emergency. They often bring relief to those in the wilds rendered helpless through injury, disease, or insanity. They settle on the spot minor disputes, especially among the Indians and Eskimos, sometimes perform marriages, and, as the Dawson inspector said to me to-day, do about everything any occasion may require except grant divorces. In extreme cases, a member of the force may arrest his man, try his case, sentence him to death, and, finally, act as clergyman, executioner, and

"Bring in your man" is the law, stronger than any legislative enactment, of the Mounted Police. The reputation established by this unique force for never giving up is one of the reasons for its astonishing success.

With the increase of crime, especially murder, among the Eskimos of the Far North, the Mounted Police now have established several stations in the Arctic, including one on Ellesmere Island, in the Polar Sea.

coroner. It is the almost inviolate rule of the organization, however, that a prisoner must be brought in alive and given his chance at a fair trial.

All these activities are carried on by a body of only a little more than a thousand men, scattered from the Maritime Provinces to the Alaska boundary. Here in the Yukon there are but fifty-one men, for whom horses and dogs furnish a part of the transportation.

To get into the service a man must have a good character, a sound body, and some education. Most of the men speak both French and English. Recruits must be between the ages of twenty-two and forty, unmarried, and expert horsemen. The term of enlistment is three years, with reënlistments permitted. Many of the present force have been long in the service. In their training at Regina, much attention is paid to shooting with both rifle and pistol, and in the latter the Mounted Police now hold the championship of all Canada. Many of them are young Englishmen who have failed to make their fortunes and some are younger sons of the nobility. In the old days a son of Charles Dickens, the novelist, served beside a former circus clown and the brother of a baronet.

The inspector of this body at Dawson is the military ruler of a region bigger than Germany. It begins at the south, within thirty miles of the Pacific Ocean, and extends northward to Herschel Island, near where the Mackenzie River flows into the Arctic. It is about a thousand miles long and several hundred miles wide. The inspector tells me that his force is scattered all over this territory, from White Horse, at the end of the White Pass Railway, to Rampart House, on the Arctic Circle. When I asked him about the work of his force, he said:

"Each of our constables has one or two men with him, and sometimes an Indian or so. Together they patrol the whole country. They make long trips to the mines, and report what is going on among the prospectors. In out-of-the-way places they keep order among the Indians and the Eskimos. They also look after the poor and the insane. Recently we heard that a dangerous lunatic was at large over in the Donjek District. Our patrol went after him and brought him several hundred miles through the country to White Horse, whence he was later sent to an asylum. Last year our men penetrated to regions never visited before; they frequently make trips of hundreds of miles by dog sled."

"But how can you keep track of the people in such a large territory?" I asked. "Your whole land is a wilderness, and for more than half the year it is all snow and ice."

"Each hotel and road house is required to keep a daily record of all who stop there," he replied, "and I may say that we know about where every man in the territory sleeps every night. We are informed of all the passengers who start up or down river, and get reports from every telegraph station they pass on the trip. When a steamer leaves White Horse for Dawson the purser hands in the names of his passengers and they are telegraphed here. If any one gets off on the way his name is wired to us, and we check up the list when the boat comes in. If three men set off in a canoe, the report on that canoe as it passes the next telegraph station will show us if one of them is missing. The patrols also send in reports of the names and business of all newcomers in their districts."

"Give me some idea of the amount of crime committed in your territory."

"Our record is fairly good," replied the inspector of the Mounted Police. "Last year we investigated forty-two cases, only eight of which were under the criminal code. Out of this total of forty-two, we secured thirty-seven convictions. Remember that this is for an area as big as France, and for a population made up largely of frontiersmen, miners, Indians, and Eskimos. Most of the time we have so few bad characters in jail here that it is difficult to keep our barracks in order and the lawn properly mowed. Just now we have two women serving terms for picking the pockets of men who were drunk. They work in the jail laundry, so we are sure of help in our washing for the rest of the year.

"We have had but few murders in our territory," the inspector continued. "The average was less than one a year for the first twenty years after the big rush to the Klondike, and in every case, without exception, the guilty were caught and executed. There are some interesting stories connected with crimes in this part of the world. Take, for instance, one that occurred in Alaska. The murdered man was a miner who had been killed by an Indian at the close of the season when the miners were about to leave for the winter. They had not time to follow the Indian, but they went to the chief of his tribe and told him that he must catch the murderer and have him ready for them when they returned in the spring. When the spring came they went to the chief and demanded the man. He replied:

"'Me got him all right. You come see.' He thereupon took them to the back of the camp and showed them a dead Indian frozen in a large block of ice. As they looked, the chief continued:

"'We got him last fall. We know you kill him in spring, so we shoot him in fall. What use feed him all winter?'

"We had a case of a miner who inveigled two young men with money to go with him in a canoe two hundred miles down the Yukon. From there they were to make their way inland to a gold prospect the miner had located. As they camped, the miner had one of the men build a fire, while he took the other off to hunt game. Within a short time the man at the camp heard a shot and later the miner came in and said they had killed a bear about a mile away and wanted the man at the camp to go with him to bring in the meat. The two started off together, the miner walking behind. The stranger began to think that all was not right. He turned his head quickly and found that his companion had raised his rifle and was drawing a bead on him. He grappled with him and succeeded in getting the gun. He ran away and finally got to Dawson, where he notified us. We watched the river and within a few days the old miner came down in a boat. Our men arrested him and then went back to the camp and found the body of the man who started out to hunt bear. The murderer was tried in a month and hanged two months later."

"Do you ever have any lynchings?" I asked.

"I do not believe there has ever been a lynching in all Canada," said the inspector. "Certainly I never have heard of one in the Yukon. Neither do we have hold-ups such as are not uncommon, I am told, in the United States."

The inspector's reference to hold-ups reminded me of a story of a highwayman I heard at the Mounted Police headquarters in Ottawa. A road agent held up a man and a woman who were riding through the hills. He cov-

ered them with his revolver and made the man dismount so he could go through his pockets. The woman was sitting on her horse, congratulating herself upon her escape, when the robber stepped up to her, saying, "Beg pardon. Just a moment, madam." He thereupon gently raised her skirt to her knees, thrust his hand into her stocking, and took out her money. He seemed to know just where it was, and there was no waste effort.

"One of the classics of our service"—it is the inspector who is speaking once more—"is the King-Hayward case. Edward Hayward, a young Englishman, was killed in the wilds around Lesser Slave Lake. He had gone up there from Edmonton to hunt with Charles King, an American from Salt Lake City. Some weeks later an Indian notified one of our sergeants that two men had come into the country and one of them had disappeared. The officer got on the trail, went to the last camp fire, where the Indian reported seeing both men, and sifted the ashes. He found three hard lumps of flesh and a bit of skull bone. Near the camp fire was a little pond. In this Indian women were set to work to fish up with their toes any hard substance they might find in the ooze. They brought up a stick-pin of unusual design and a pocketbook. The pond was drained and on the bottom was a shoe with a broken needle sticking in it. The sergeant then examined the ashes of the fire with a microscope, which revealed the eye of the broken needle.

"King was tracked down and arrested, and Hayward's brother was brought on from England to identify the trinkets of the murdered man. It took the sergeant eleven months to complete his case, and he had to bring forty Indian and half-breed witnesses from Lesser Slave Lake

to Edmonton to testify at the trial. But King was finally convicted and hanged. All this cost the Canadian government more than thirty thousand dollars, yet it was not considered a waste of money."

I inquired of the inspector the cause of most of the crime in his division. He replied:

"One of our troubles is with smuggled liquor. We try especially to keep it from the Indians, but nevertheless it gets in. In one instance bottles of whisky were shipped to the Yukon inside the carcasses of dressed hogs. In another a woman contrived a rubber sleeve, which she filled with whisky. All one had to do for a drink was to give her arm a hard squeeze."

I asked how it was that the Mounted Police are so feared by bad characters that this whole territory can be controlled by a handful of them. The officer replied:

"Every man in frontier Canada knows that if he is wanted by the Mounted Police, they are sure to get him. A fugitive from justice could very easily kill one of our men sent after him, but he realizes that if he does so, another will follow, and as many more as are necessary until he is brought in. I have seen constables arrest men of twice their weight and strength, and have had one or two men round up a mob and bring them all to jail. This is true not only of our own bad men, but also of those who come across from Alaska. They may be dangerous on the other side of the border, but they are always gentle enough when they get here.

"The big thing that helps us," concluded the head of the police, "is that the government supports us up to the limit. For example, it cost us two hundred thousand dollars to convict in one famous murder case, but it was done

and the guilty man hanged. Ottawa always tells us that it is prepared to spend any amount of money rather than have a murderer go unpunished. It is that policy that enables us to keep order here."

THE END

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WITH

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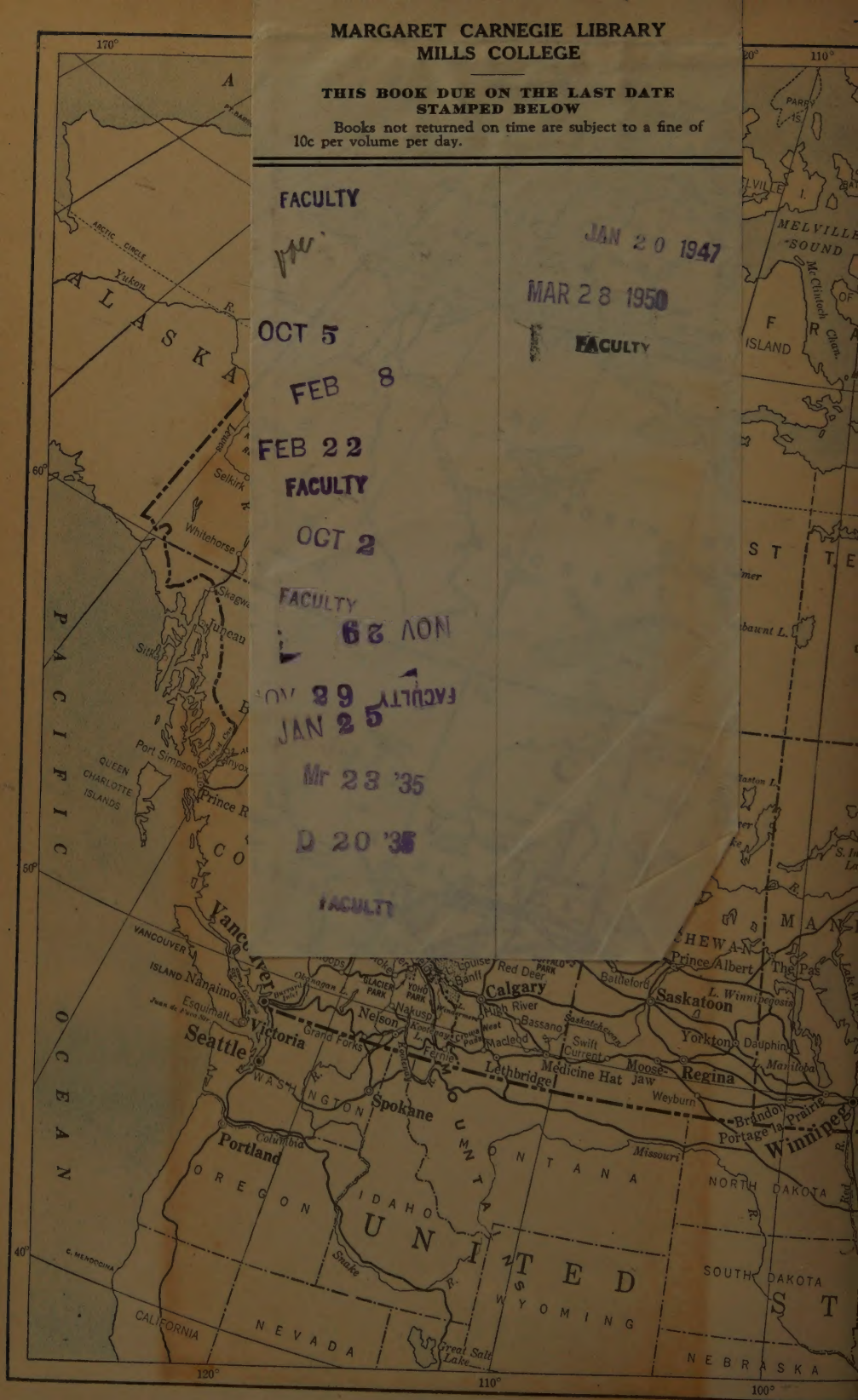

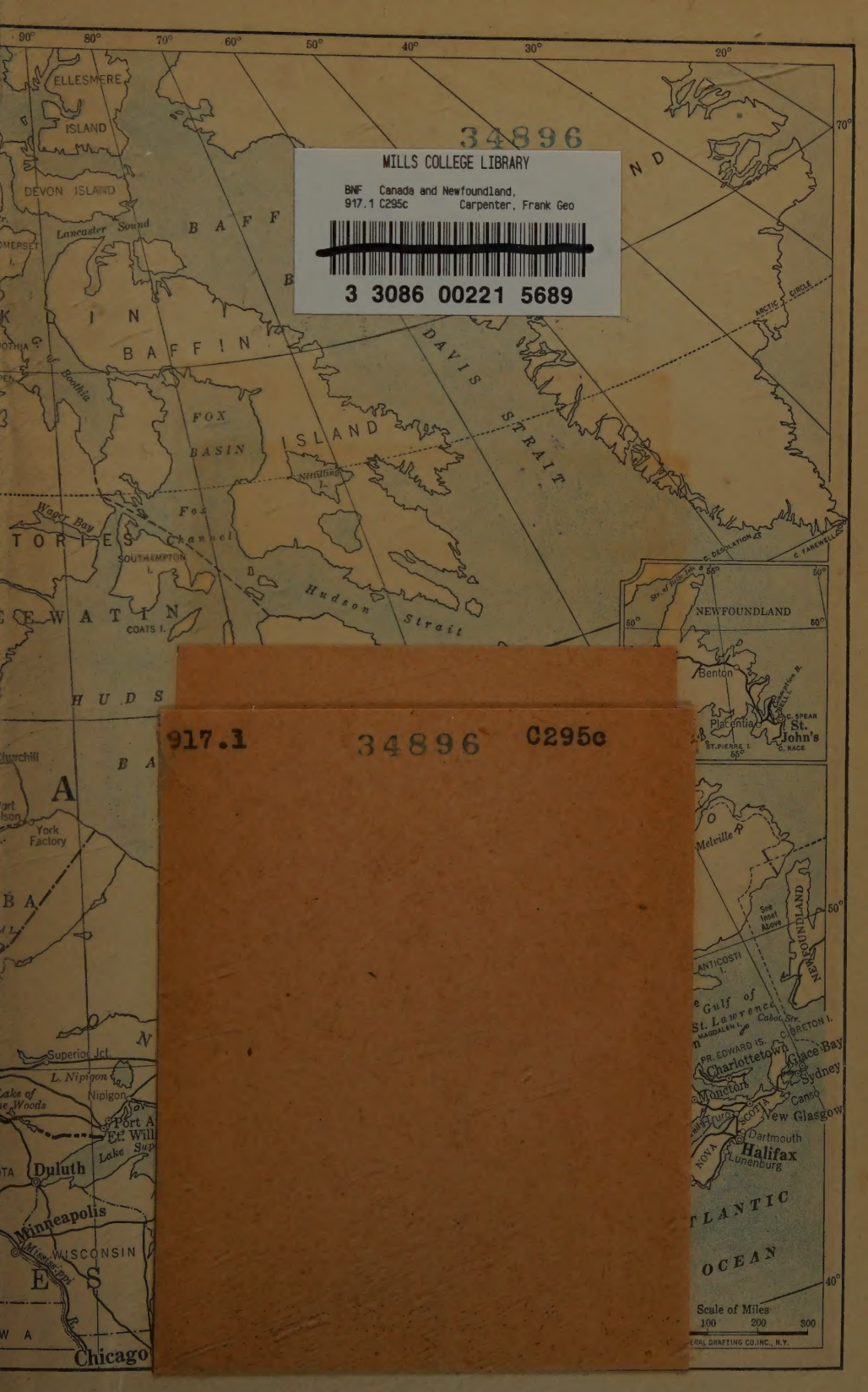

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